JUGONNATH SUNKERSETT
PRESENTATION.

Extract from London Times dated 25th November 1969 :

£. 90,000 for Audubon set

by GERALDINE KEEN
Sale Room Correspondent

Four volumes containing the 435 plates of Audubon's Birds of America were sold at Sotheby's yesterday for £.90,000 to Mr. Kenneth Nebenzahl, a Chicago book dealer. Times have changed since in the early years of the nineteenth century John James Laforest Audubon, the American naturalist and artist, failed to interest any American publishers in his ambitious project to produce a major fully illustrated work on the birds of America.

Hoping to fare better he came to England. The essential problem was to find an engraver prepared to work on the seven hundred plates he projected and to find enough subscribers for the work, which was issued in parts. Both were happily found. The work took 11 years to publish, from 1827 to 1838, and by the end of the period the original 300 subscribers had dwindled to about 100.

This tremendously important and decorative work is thus extremely rare. Most sets are in public libraries; in other cases sets have been broken up and the plates sold separately.

This was one of the very few complete editions remaining in private hands, and was in unusually fine condition; the plates engraved in aquatint and coloured by hand had hardly suffered over the years. An extra point of interest was the addition of early states of 13 of the plates - early proofs before extra birds were added to the composition. Nevertheless the price was remarkable; a less distinguished set was sold for £.21,429 at Parke Bernet in New York in 1966.

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BIRDS OF AMERICA.

THE

BIRDS OF AMERICA,

FROM

DRAWINGS MADE IN THE UNITED STATES

AND THEIR TERRITORIES.

f-x. n. 16

BY

JOHN JAMES AUDUBON, F.R.S., &c., &c.

57437

RE-ISSUED BY J. W. AUDUBON

VOL. V.

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CONTENTS.

		PAGE
Zenaida Dove, - - - -	*Columba zenaida*, - - - -	9
Key West Pigeon, or Dove, -	*montana*, - - -	14
Ground Dove, - - - -	*passerina*, - - -	19
Blue-headed Pigeon, or Ground Dove,	*Starnænas cyanocephala*, - -	23
GENUS III. ECTOPISTES. LONG-TAILED DOVE. - - -		25
Passenger Pigeon, - - -	*Ectopistes migratoria*, - -	25
Carolina Turtle-Dove, - -	*carolinensis*, - -	36
FAMILY XXX. PAVONINÆ. PAVONINE BIRDS. -		41
GENUS I. MELEAGRIS. TURKEY. - - - - - - -		41
Wild Turkey, - - - -	*Meleagris Gallopavo*, - -	42
FAMILY XXXI. PERDICINÆ. PARTRIDGES. - -		58
GENUS I. ORTHYX. AMERICAN PARTRIDGE. - - - -		58
Common American Partridge, -	*Ortix virginiana*, - - -	59
Californian Partridge, -	*Californica*, - - -	67
Plumed Partridge, - - -	*plumifera*, - - -	69
Welcome Partridge, - - -	*neoxenus*, - - - -	71
FAMILY XXXII. TETRAONINÆ. GROUSE. - - -		72
GENUS I. TETRAO. GROUSE. - - - - - - -		72
Ruffed Grouse, - - - -	*Tetrao umbellus*, - - -	73

		PAGE
Spotted or Canada Grouse, -	*Tetrao canadensis*, - -	83
Dusky Grouse, - - - -	*obscurus*, - - -	89
Pinnated Grouse, - - -	*cupido*, - - -	93
Pheasant-tailed Grouse.—Cock of the Plains, - - - -	*urophasianus*, - -	106
Sharp-tailed Grouse, - - -	*Phasianellus*, - -	110
GENUS II. LAGOPUS. PTARMIGAN. - - - - -		113
Willow Ptarmigan.—Willow Grouse,	*Lagopus albus*, - - -	114
American Ptarmigan, - - -	*Americanus*, - -	119
Rock Ptarmigan - - - -	*rupestris* - -	122
White-tailed Ptarmigan, - -	*leucurus*, - - -	125
FAMILY XXXIII. RALLINÆ. RAILS. - - - -		127
GENUS I. GALLINULA. GALLINULE. - - - - -		127
Purple Gallinule, - - -	*Gallinula martinica*, - -	128
Common Gallinule, - - -	*Chloropus*, - -	132
GENUS II. FULICA. COOT. - - - - - - - -		138
American Coot, - - - -	*Fulica Americana* - - -	138
GENUS III. ORTYGOMETRA. CRAKE-GALLINULE, - - -		144
Sora Rail, - - - - - -	*Ortygometra carolinus*, - -	145
Yellow-breasted Rail, - - -	*Noveboracensis*, -	152
Least Water Rail, - - -	*jamaicensis* -	157
GENUS IV. RALLUS. RAIL. - - - - - - - -		159
Great Red-breasted Rail, or Fresh-Water Marsh-hen, - - -	*Rallus elegans*, - - -	160
Clapper Rail, or Salt-water Marsh-hen, - - - - - -	*crepitans*, - - -	165
Virginia Rail, - - - -	*virginianus*, - -	174
GENUS V. ARAMUS. COURLAN. - - - - - -		180
Scolopaceous Courlan, - - -	*Aramus Scolopaceus*, - -	181

PAGE

FAMILY XXXIV. GRUINÆ. CRANES. - - - - 187

GENUS I. GRUS. CRANE. - - - - - - - - 187

Whooping Crane, - - *Grus americana*, - - - - 188

FAMILY XXXV. CHARADRIINÆ. PLOVERS. - - 197

GENUS I. CHARADRIUS. PLOVER. - - - - - 198

Black-bellied Plover, - - - *Charadrius Helveticus*, - - 199
American Golden Plover, - - *marmoratus*, - 203
Kildeer Plover, - - - - *vociferus*, - - 207
Rocky-mountain Plover, - - *montanus*, - - 213
Wilson's Plover, - - - - *Wilsonius*, - - 214
American Ring Plover, - - *semipalmatus*, - 218
Piping Plover, - - - - *melodus*, - - 223

GENUS II. APHRIZA. SURF-BIRD. - - - - - - 227

Townsend's Surf-bird, - - - *Aphriza Townsendi*, - - 228

GENUS III. STREPSILAS. TURNSTONE. - - - - - 230

Turnstone, - - - - - - *Strepsilas Interpres*, - - 231

GENUS IV. HÆMATOPUS. OYSTER-CATCHER. - - - 236

American Oyster-catcher, - - *Hæmatopus palliatus*, - - 236
Bachman's Oyster-catcher, - - *Bachmani*, - - 243
Townsend's Oyster-catcher, - - *Townsendi*, - - 245

FAMILY XXXVI. SCOLOPACINÆ. SNIPES. - - 247

GENUS I. TRINGA. SANDPIPER. - - - - - - - 247

Bartramian Sandpiper, - - - *Tringa Bartramia*, - - 248
Knot or Ash-coloured or Red-breasted Sandpiper, - - - *islandica*, - - - 254
Pectoral Sandpiper, - - - *pectoralis*, - - - 259
Purple Sandpiper, - - - *maritima*, - - - 261
Buff-breasted Sandpiper, - - *rufescens*, - - - 264
Red-backed Sandpiper, - - *alpina*, - - - 266

		PAGE
Curlew Sandpiper,	*Tringa subarquata*,	269
Long-legged Sandpiper,	*Himantopus*,	271
Schinz's Sandpiper,	*Schinzii*,	275
Semipalmated Sandpiper,	*semipalmata*,	277
Little Sandpiper,	*pusilla*,	280
Sanderling Sandpiper,	*arenaria*,	287
GENUS II. PHALAROPUS. PHALAROPE.		290
Red Phalarope,	*Phalaropus fulicarius*,	291
GENUS III. LOBIPES. LOBEFOOT.		295
Hyperborean Phalarope,	*Lobipes hyperboreus*,	295
Wilson's Phalarope,	*Wilsonii*,	299
GENUS IV. TOTANUS. TATLER.		303
Spotted Sandpiper, or Tatler,	*Totanus macularius*,	303
Solitary Sandpiper, or Tatler,	*solitarius*,	309
Yellow-shank Tatler,	*flavipes*,	313
Tell-tale Godwit.—Tell-tale Tatler,	*vociferus*,	316
Greenshank Tatler,	*Glottis*,	321
Semipalmated Snipe, or Willet,	*semipalmatus*,	324
GENUS V. LIMOSA. GODWIT.		330
Great Marbled Godwit,	*Limosa Fedoa*,	331
Hudsonian Godwit,	*hudsonica*,	335
GENUS VI. SCOLOPAX. SNIPE.		338
Wilson's Snipe.—Common Snipe,	*Scolopax Wilsonii*,	339

Zenaida Dove?

1. Male 2. Female.

Anona.

Drawn from Nature by J.J. Audubon, F.R.S.L.S. Lith.d Printed & Col.d by J. T. Bowen. Phila.a

BIRDS OF AMERICA.

THE ZENAIDA DOVE.

COLUMBA ZENAIDA, *Bonap.*

PLATE CCLXXXI.—MALE AND FEMALE.

THE impressions made on the mind in youth, are frequently stronger than those at a more advanced period of life, and are generally retained. My father often told me, that when yet a child, my first attempt at drawing was from a preserved specimen of a Dove, and many times repeated to me that birds of this kind are usually remarkable for the gentleness of their disposi tion, and that the manner in which they prove their mutual affection, and feed their offspring, was undoubtedly intended in part to teach other beings a lesson of connubial and parental attachment. Be this as it may, hypothesis or not, I have always been especially fond of Doves. The timidity and anxiety which they all manifest, on being disturbed during incubation, and the continuance of their mutual attachment for years, are distinguishing traits in their character. Who can approach a sitting Dove, hear its notes of remonstrance, or feel the feeble strokes of its wings, without being sensible that he is committing a wrong act?

The cooing of the Zenaida Dove is so peculiar, that one who hears it for the first time naturally stops to ask, "What bird is that?" A man who was once a pirate assured me that several times, while at certain wells dug in the burning shelly sands of a well known Key, which must here be nameless, the soft and melancholy cry of the Doves awoke in his breast feelings which had long slumbered, melted his heart to repentance, and caused him to linger

at the spot in a state of mind which he only who compares the wretchedness of guilt within him with the happiness of former innocence, can truly feel. He said he never left the place without increased fears of futurity, associated as he was, although I believe by force, with a band of the most desperate villains that ever annoyed the navigation of the Florida coasts. So deeply moved was he by the notes of any bird, and especially by those of a Dove, the only soothing sounds he ever heard during his life of horrors, that through these plaintive notes, and them alone, he was induced to escape from his vessel, abandon his turbulent companions, and return to a family deploring his absence. After paying a parting visit to those wells, and listening once more to the cooings of the Zenaida Dove, he poured out his soul in supplications for mercy, and once more became what one has said to be "the noblest work of God," an honest man. His escape was effected amidst difficulties and dangers, but no danger seemed to him to be compared with the danger of one living in the violation of human and divine laws, and now he lives in peace in the midst of his friends.

The Zenaida Dove is a transient visiter of the Keys of East Florida. Some of the fishermen think that it may be met with there at all seasons, but my observations induce me to assert the contrary. It appears in the islands near Indian Key about the 15th of April, continues to increase in numbers until the month of October, and then returns to the West India Islands, whence it originally came. They begin to lay their eggs about the first of May. The males reach the Keys on which they breed before the females, and are heard cooing as they ramble about in search of mates, more than a week before the latter make their appearance. In autumn, however, when they take their departure, males, females, and young set out in small parties together.

The flight of this bird resembles that of the little Ground Dove more than any other. It very seldom flies higher than the tops of the mangroves, or to any considerable distance at a time, after it has made choice of an island to breed on. Indeed, this species may be called a Ground Dove, too; for, although it alights on trees with ease, and walks well on branches, it spends the greater portion of its time on the ground, walking and running in search of food with lightness and celerity, carrying its tail higher than even the Ground Dove, and invariably roosting there. The motions of its wings, although firm, produce none of the whistling sound, so distinctly heard in the flight of the Carolina Dove; nor does the male sail over the female while she is sitting on her eggs, as is the habit of that species. When crossing the sea, or going from one Key to another, they fly near the surface of the water; and, when unexpectedly startled from the ground, they remove to a short distance, and alight amongst the thickest grasses or in the heart of the

low bushes. So gentle are they in general, that I have approached some so near that I could have touched them with my gun, while they stood intently gazing on me, as if I were an object not at all to be dreaded.

Those Keys which have their interior covered with grass and low shrubs, and are girt by a hedge of mangroves, or other trees of inferior height, are selected by them for breeding; and as there are but few of this description, their places of resort are well known, and are called Pigeon or "*Dove Keys.*" It would be useless to search for them elsewhere. They are by no means so abundant as the White-headed Pigeons, which place their nest on any kind of tree, even on those whose roots are constantly submersed. Groups of such trees occur of considerable extent, and are called "Wet Keys."

The Zenaida Dove always places her nest on the ground, sometimes artlessly at the foot of a low bush, and so exposed that it is easily discovered by any one searching for it. Sometimes, however, it uses great discrimination, placing it between two or more tufts of grass, the tops of which it manages to bend over, so as completely to conceal it. The sand is slightly scooped out, and the nest is composed of slender dried blades of grass, matted in a circular form, and imbedded amid dry leaves and twigs. The fabric is more compact than the nest of any other Pigeon with which I am acquainted, it being sufficiently solid to enable a person to carry the eggs or young in it with security. The eggs are two, pure white, and translucent. When sitting on them, or when her young are still small, this bird rarely removes from them, unless an attempt be made to catch her, which she, however, evades with great dexterity. On several occasions of this kind, I have thought that the next moment would render me the possessor of one of these Doves alive. Her beautiful eye was steadily bent on mine, in which she must have discovered my intention, her body was gently made to retire sidewise to the further edge of her nest, as my hand drew nearer to her, and just as I thought I had hold of her, off she glided with the quickness of thought, taking to wing at once. She would then alight within a few yards of me, and watch my motions with so much sorrow, that her wings drooped, and her whole frame trembled as if suffering from intense cold. Who could stand such a scene of despair? I left the mother to her eggs or offspring.

On one occasion, however, I found two young birds of this species about half grown, which I carried off, and afterwards took to Charleston, in South Carolina, and presented to my worthy friend the Rev. JOHN BACHMAN. When I robbed this nest, no parent bird was near. The little ones uttered the usual lisping notes of the tribe at this age, and as I put their bills in my mouth, I discovered that they might be easily raised. They were afterwards fed from the mouth with Indian corn meal, which they received with

avidity, until placed under the care of a pair of common tame Pigeons, which at once fostered them.

The cooing of this species so much resembles that of the Carolina Dove, that, were it not rather soft, and heard in a part of the world where the latter is never seen, you might easily take it for the notes of that bird. Morning is the time chosen by the Zenaida Dove to repeat her tender tales of love, which she does while perched on the low large branch of some tree, but never from the ground. Heard in the wildest solitudes of the Keys, these notes never fail to remind one that he is in the presence and under the protection of the Almighty Creator.

During mid-day, when the heat is almost insufferable in the central parts of the Keys resorted to by these birds, they are concealed and mute. The silence of such a place at noon is extremely awful. Not a breath of air is felt, nor an insect seen, and the scorching rays of the sun force every animated being to seek for shelter and repose.

From what I have said of the habits of the Zenaida Dove, you may easily conceive how difficult a task it is to procure one. I have had full experience of the difficulty, and entire satisfaction in surmounting it, for in less than an hour, with the assistance of Captain DAY, I shot nineteen individuals, the internal and external examination of which enabled me to understand something of their structure.

The flesh is excellent, and they are generally very fat. They feed on grass seeds, the leaves of aromatic plants, and various kinds of berries, not excepting those of a tree which is extremely poisonous,—so much so, that if the juice of it touch the skin of a man, it destroys it like aquafortis. Yet these berries do not injure the health of the birds, although they render their flesh bitter and unpalatable for a time. For this reason, the fishermen and wreckers are in the habit of examining the crops of the Doves previous to cooking them. This, however, only takes place about the time of their departure from the Keys, in the beginning of October. They add particles of shell or gravel to their food.

From my own observations, and the report of others, I am inclined to believe that they raise only two broods each season. The young, when yet unfledged, are of a deep leaden or purplish-grey colour, the bill and legs black, nor is it until the return of spring that they attain their full plumage. The male is larger than the female, and richer in the colouring of its plumage. Their feathers fall off at the slightest touch, and like all other Pigeons, when about to die, they quiver their wings with great force.

The eggs of this species measure one inch and a quarter in length, by nearly seven-eighths in breadth; and are abruptly pointed at the smaller end I am informed by the Earl of DERBY that this Pigeon is raised with ease in

aviaries, so much so as to have induced him to let some loose. Should it thrive in a wild state in England, it will form a valuable accession, as its flesh is excellent.

The branch on which I have represented these birds, belonged to a low shrub abundant in the Keys where they are found. The flower has a musty scent, and is of short duration.

This species resorts to certain wells, which are said to have been dug by pirates, at a remote period. There the Zenaida Doves and other birds are sure to be seen morning and evening. The loose sand thrown up about these wells suits them well to dust in, and clean their apparel.

COLUMBA ZENAIDA, Bonap. Syn., p. 119.
ZENAIDA DOVE, *Columba Zenaida*, Bonap. Amer. Orn., vol. ii.
ZENAIDA DOVE, Nutt. Man., vol. i. p. 625.
ZENAIDA DOVE, *Columba Zenaida*, Aud. Orn. Biog., vol. ii. p. 354; vol. v. p. 558.

Male, 11½, 18⅜. Female, 10½.
Florida Keys during summer only. Common.
Adult Male.

Bill short, straight, rather slender, compressed; upper mandible with a tumid fleshy covering at the base, a convex, declinate, obtuse tip, of which the margins are acute and overlapping; lower mandible, with the angle near the extremity, which is compressed and rounded. Nostrils medial, oblique, linear. Head small and compressed; the general form rather full. Legs short and of moderate strength; tarsus short, covered anteriorly with four broad scutella at the upper part, and a double series below, rounded and hexagonally reticulated behind; toes scutellate above, free, margined; two lateral toes nearly equal, middle one not much longer, hind toe much smaller.

Plumage rather compact. Wings of moderate length, second and third quills longest, first and fourth equal. Tail rather short, much rounded.

Bill deep carmine-purple. Iris brown; bare space surrounding the eye light blue. Feet deep carmine-purple. The general colour of the plumage above is light yellowish-brown tinged with grey. Quills brownish-black, narrowly margined with white, seven of the secondaries broadly tipped with the same; the inner ones of the same colour as the back, but having a broad black spot on the inner web towards the end, which is also the case with the tertiaries; several of the coverts also have a black spot on the outer web. The four lateral tail-feathers on each side are greyish-blue, with a broad black bar towards the end, the extremity greyish-white, the four middle feathers of the colour of the back, with a faint dusky bar. The sides of the head and under parts are of a light brownish-red, paler on the throat, and passing into greyish-blue on the sides; under wing-coverts pale bluish

grey. There is a small spot of deep blue immediately behind the eye, and a larger one a little below on the side of the neck; and a band of splendent feathers extends over the back and sides of the neck, having bright purple and greenish reflections.

Length 11½ inches; extent of wings 18⅛; bill along the back $\frac{7}{12}$, along the edges $\frac{11}{12}$; tarsus $\frac{11}{12}$.

Adult Female.

The female can scarcely be distinguished from the male, the colouring being but slightly fainter.

Length 10½ inches.

Purple-flowered Anona.

Porcelia parviflora, *Pursh*, Fl. Amer. Sept., vol. ii. p. 383.

This plant is very abundant on many of the outer Keys of the Floridas. It grows among other shrubs, seldom exceeding seven or eight feet in height, and more frequently not more than four or five. The leaves are obovate, rounded at the base, thick, glossy above, downy beneath. The outer petals are larger, and not unlike the divided shell of a hickory or pig nut; the inner ovate, deep purple, with a white band at the base. I did not see the fruit, which I was told is not unpalatable when ripe, it being then about the size of a common walnut, and of a black colour.

THE KEY WEST PIGEON, OR DOVE.

Columba montana, *Linn.*

PLATE CCLXXXII.—Male and Female.

It was at Key West that I first saw this beautiful Pigeon. The Marion was brought to anchor close to, and nearly opposite, the little town of the same name, some time after the setting of the sun. The few flickering lights I saw nearly fixed the size of the place in my imagination. In a trice, the kind captain and I were seated in his gig, and I felt the onward movement of the light bark as if actually on wing, so well timed was the pulling of the

Key-West Dove.

1. Male. 2. Female.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen. Philad.a

brave tars who were taking us to the shore. In this place I formed acquaintance with Major GLASSEL of the United States Artillery, and his family, of Dr. BENJAMIN STROBEL, and several other persons, to whom I must ever feel grateful for the kind attention which they paid to me and my assistants, as well as for the alacrity with which they aided me in procuring rare specimens not only of birds, but also of shells and plants, most of which were unknown to me. Indeed—I cannot too often repeat it—the facilities afforded me by our Government, during my latter journeys and voyages, have been so grateful to my feelings, that I have frequently thought that circumstance alone quite sufficient to induce even a less ardent lover of nature to exert himself to the utmost in repaying the favour.

Major GLASSEL sent one of his serjeants with me to search the whole island, with which he was perfectly acquainted. The name of this soldier was SYKES, and his life, like mine, had been a chequered one; for there are few pleasures unaccompanied with pains, real or imaginary, and the worthy serjeant had had his share of both. I soon discovered that he was a perfect woodsman, for although we traversed the densest thickets, in close and gloomy weather, he conducted me quite across the island, in as masterly a manner as ever did an Indian on a like occasion.—But perhaps, kind reader, a copy of my journal for that day, may afford you a clearer idea of our search for rare birds, than any other means that I could devise. Before I proceed, however, allow me to state, that, while at Charleston, in South Carolina, I saw at my friend BACHMAN'S house the head of a Pigeon which Dr. STROBEL had sent from Key West, and which I perceived did not belong to the Zenaida Dove. Serjeant SYKES had sent the Pigeon, and acquainted as he was with the birds of the country, he gave some hope that we might procure a few of them that very day; and now, for my Journal.

"*May* 6, 1832.—When I reached the garrison, I found the serjeant waiting for me. I gave him some small shot, and we set off, not in full run, nor even at a dog-trot, but with the slowness and carefulness usually employed by a lynx or a cougar when searching for prey. We soon reached the thickets, and found it necessary to move in truth very slowly, one foot warily advanced before the other, one hand engaged in opening a passage, and presently after occupied in securing the cap on the head, in smashing some dozens of hungry musquitoes, or in drawing the sharp thorn of a cactus from a leg or foot, in securing our gun-locks, or in assisting ourselves to rise after a fall. But we pushed on, squeezed ourselves between the stubborn branches, and forced our way as well as we could, my guide of course having the lead. Suddenly I saw him stoop, and observing the motion of his hand, immediately followed his example. Reduced by his position to one half of his natural height, he moved more briskly, inclined

to the right, then to the left, then pushed forward, and raising his piece as he stopped, immediately fired. 'I have it,' cried he. 'What?' cried I. 'The Pigeon'—and he disappeared. The heat was excessive, and the brushwood here was so thick and tangled, that had not Mr. SYKES been a United States soldier, I should have looked upon him as bent on retaliating on behalf of "the eccentric naturalist;" for, although not more than ten paces distant from me, not a glimpse of him could I obtain. After crawling to the spot I found him smoothing the feathers of a Pigeon which I had never seen, nay, the most beautiful yet found in the United States. How I gazed on its resplendent plumage!—How I marked the expression of its rich-coloured, large and timid eye, as the poor creature was gasping its last breath! Ah, how I looked on this lovely bird! I handled it, turned it, examined its feathers and form, its bill, its legs and claws, weighed it by estimate, and after a while formed a winding-sheet for it of a piece of paper. Did ever an Egyptian pharmacopœist employ more care in embalming the most illustrious of the Pharaohs, than I did in trying to preserve from injury this most beautiful of the woodland cooers!

"I never felt, nor did my companion, that our faces and hands were covered with musquitoes; and although the perspiration made my eyes smart, I was as much delighted as ever I had been on such an occasion. We travelled onward, much in the same manner, until we reached the opposite end of the island; but not another bird did we meet this day.

"As we sat near the shore gazing on the curious light pea-green colour of the sea, I unfolded my prize, and as I now more quietly observed the brilliant changing metallic hues of its plumage, I could not refrain from exclaiming—'But who will draw it?' for the obvious difficulties of copying nature struck me as powerfully as they ever had done, and brought to my memory the following passage:—'La nature se joue du pinceau des hommes;—lorsqu' on croit qu'il a atteint sa plus grande beauté, elle sourit et s'embellit encore!'"

We returned along the shore of this curious island to the garrison, after which Major GLASSEL'S barge conveyed me on board the Marion.

I have taken upon myself to name this species the Key West Pigeon, and offer it as a tribute to the generous inhabitants of that island, who favoured me with their friendship.

The flight of this bird is low, swift, and protracted. I saw several afterwards when they were crossing from Cuba to Key West, the only place in which I found them. It flies in loose flocks of from five or six to a dozen, with flappings having an interval apparently of six feet; so very low over the sea, that one might imagine it on the eve of falling into the water every moment. It is fond of going out from the thickets early in the morning,

for the purpose of cleansing itself in the shelly sand that surrounds the island; but the instant it perceives danger it flies off to the woods, throws itself into the thickest part of them, alights on the ground, and runs off with rapidity until it thinks itself secure. The jetting motions of its tail are much like those of the Carolina Dove, and it moves its neck to and fro, forward and backward, as Pigeons are wont to do.

The cooing of this species is not so soft or prolonegd as that of the Common Dove, or of the Zenaida Dove, and yet not so emphatical as that of any true Pigeon with which I am acquainted. It may be imitated by pronouncing the following syllables :—*Whoe-whoe-oh-oh-oh.* When suddenly approached by man, it emits a guttural gasping-like sound, somewhat in the manner of the Common Tame Pigeon on such an occasion. They alight on the lower branches of shrubby trees, and delight in the neighbourhood of shady ponds, but always inhabit, by preference, the darkest solitudes.

The nest of the Key West Pigeon is formed of light dry twigs, and much resembles in shape that of the Carolina Dove. Sometimes you find it situated on the ground, when less preparation is used. Some nests are placed on the large branches of trees quite low, while others are fixed on slender twigs. On the 20th May, one of these nests was found containing two pure white eggs, about the size of those of the White-headed Pigeon, nearly round, and so transparent that I could see the yolk by holding them to the light. How long incubation continues, or if they raise more than one brood in a season, I am unable to say.

Towards the middle of July they become sufficiently abundant at Key West to enable sportsmen to shoot as many as a score in a day; for, as soon as the young are able to follow their parents, they frequently resort to the roads to dust themselves, and are then easily approached. Dr. STROBEL told me he had procured more than a dozen of these birds in the course of a morning, and assured me that they were excellent eating.

Their food consists of berries and seeds of different plants, and when the sea-grape is ripe, they feed greedily upon it. They all depart for Cuba, or the other West India Islands, about the middle of October.

Until my arrival at Key West, this species was supposed to be the Zenaida Dove. The young, when fully feathered, are of a dark-grey colour above, lighter below, the bill and legs of a deep leaden hue. I am inclined to believe that they attain their full beauty of plumage the following spring.

So much are these birds confined to the interior of the undergrowth, that their loves are entirely prosecuted there; nor do they on such occasions elevate themselves in the air, as is the manner of the Carolina Dove.

COLUMBA MONTANA, Linn. Syst. Nat., vol. i p. 281.
KEY WEST PIGEON, *Columba montana*, Aud. Orn. Biog., vol. ii. p. 382.

Male, 11¾, 17½.

Key West only during summer. Not rare.

Adult Male.

Bill straight, of ordinary length, rather slender, broader than deep at the base, compressed toward the end; upper mandible with a tumid fleshy covering at the base, a convex declinate obtuse tip, and a slight sinus in the sharp margins; lower mandible with the angle near the extremity, which is compressed and rounded. Nostrils medial, oblique, linear. Head small and compressed, the general form rather robust. Legs short, and of moderate strength; tarsus covered anteriorly with broad scutella, rounded behind; toes scutellate, free, margined; claws rather small, arched, compressed, marginate, obtuse.

Plumage compact on the back, elsewhere blended with strong but disunited barbs. Wings of ordinary length; second quills longest, first intermediate between the fourth and fifth. First four primaries more or less cut out on the outer web, towards the end. Tail much rounded, of twelve broad rounded feathers.

Bill horn-colour at the end, the fleshy parts at the base bright carmine. Iris and margins of the eye-lids carmine. Feet flesh-coloured, the scutella of the tarsus and toes carmine. Forehead and a band running behind the eye light reddish-brown; upper part of the head shining with purplish-brown and light green reflections, as is the back of the neck. The general colour of the upper parts is brownish-red, the wing-coverts and margins of the quills and tail shaded with green, the fore part of the back splendent with purple reflections. There is a broad white band from the lower mandible beneath the eye, and the throat is of the same colour; under the subocular white band is another of the same colour as the forehead. The fore-neck and breast are of a rich but delicate pale purple, which fades into cream colour behind. Under surface of the wings and tail of the same colour as the upper, but fainter.

Length 11¾ inches, extent of wings 17½; bill along the back $\frac{10}{12}$, along the edge 1 inch; tarsus $1\frac{2}{12}$, middle-toe $\frac{4}{12}$; weight 6 ounces.

Adult Female.

The female resembles the male, the tints being merely fainter, and the gloss of the neck and back less splendent.

The plants represented in this plate grew on Key West, in sheltered situations. That with purple flowers is a *convolvulus*, the other an *ipomæa*. The blossoms are partially closed at night, and although ornamental, are destitute of odour.

N° 57.

Ground Dove.

1. & 2. Males 3 Female & Young.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S. Wild Orange. Lith. Printed & Col.d by J. T. Bowen. Phila.d.

THE GROUND DOVE.

COLUMBA PASSERINA, *Linn.*

PLATE CCLXXXIII.—MALES, FEMALE, AND YOUNG.

If the different species of Pigeons and Doves which I have described, have interested you sufficiently to render you desirous of holding further converse with that interesting family, and of examining for yourself, which I sincerely wish you would resolve to do, you may perhaps visit the islands, which, like so many bastions, protect the shores of South Carolina, Georgia, and the Floridas, those spots where, in the calm of every spring morn, the air is rendered balmy by the effluvia of thousands of flowers, each of which rivals its neighbour in the brilliancy of its hues. Stop there, kind reader, and seat yourself beneath the broadly extended arms of the thickly-leaved evergreen oak, and at that joyous moment when the first beams of the sun reach your eye, see the Owl passing low and swiftly over the ground, in haste to reach his diurnal retreat before the increasing light renders all things dim to his sight; observe the leathern-winged Bat, pursuing his undulating course through the dewy air, now deflecting downwards to seize the retiring nocturnal insect, now upwards to pursue another species, as it rises to meet the genial warmth emitted by the orb of day. Listen,—for at such a moment your soul will be touched by sounds,—to the soft, the mellow, the melting accents, which one might suppose inspired by Nature's self, and which she has taught the Ground Dove to employ in conveying the expression of his love to his mate, who is listening to them with delight.

Before I proceed to describe the habits of this interesting bird, allow me to present you with the result of my observations relative to the geographical distribution of the birds of the genus Columba, which are either resident in the United States or visit them annually.

The *Passenger Pigeon* ranges over the whole of the United States, excepting perhaps the southernmost portions of the Floridas, and extends to Newfoundland, where it is well known.

The *Carolina Dove* ranges from Louisiana to the middle parts of the State of Massachusetts, bu is never seen in Maine. It reaches up the Mississippi as far as Prairie du Chien, and in that direction extends to the borders of Upper Canada.

The *Ground Dove* is met with from the lower parts of Louisiana to Cape

Hatteras, following the coast quite round the Floridas, but very seldom seen at any great distance in the interior. It is unknown in the State of Mississippi; and I will venture to add, that one of these birds has never been seen in Kentucky, although some writers have alleged that they occur there. They are more abundant on the sea islands of Georgia, and the middle portions of the coast of East Florida, than anywhere else. A search for them a hundred miles inland would in all probability prove fruitless.

The *White-headed Pigeon* is confined to about three hundred miles of the Florida Keys. It seldom, if ever, visits the mainland. It remains with us about seven months of the year.

The *Zenaida Dove* seldom reaches farther east, along the Florida Keys, than Cape Light-House. It never visits the Main. Its residence with us is shorter than that of the White-headed Pigeon by a full month.

The *Key West Pigeon* has never been met with elsewhere than on the island of that name. It remains there about five months only.

The same is the case with the Blue-headed Ground Pigeon, commonly called the Cuba Partridge, which is the rarest of all the species known to me that resort to the Floridas.

In the above account, I have placed the species according to the number of individuals of each that occur in our country, beginning with the Passenger Pigeon, which is the most numerous, and ending with the Blue-headed Pigeon, which is the rarest; and I beg of you, kind reader, to recollect that hear-say has no part as a foundation for the results in this statement. I may also inform you, that curiosity, in part, prompted me to present it, it having been written in 1832, with the view of seeing if any of these birds shall become more or less numerous, or extend or diminish their range.

The flight of the Ground Dove is low, easy, and accompanied with a whistling sound, produced by the action of the wings, when the bird is surprised and forced to fly. It is less protracted than that of any other species with which I am acquainted in the United States, with the exception of the Blue-headed Pigeon. The crossing of the Gulf Stream by the latter bird is more surprising than the extended flight of the European Quail. The Ground Dove seldom flies more than a hundred yards at a time, and indeed is extremely attached to the spot which it has selected for the season. You may drive it to the opposite end of a large field and yet, in a few hours after, it may be found in the place whence you raised it. Although it alights on trees or low bushes, on the branches of which it walks with ease, and on which its nest is most frequently placed, the ground is its usual resort. There it runs with facility, keeping its tail considerably elevated, as if to save it from being soiled. It is also fond of alighting on fences, where it is easily observed, and where it may be heard cooing for half an hour at a time.

These Pigeons are met with in groups of four or five, and it is seldom that more than a dozen are seen together. They prefer the thinly grassed sandy portions of cotton fields, pea-patches, and such places. In East Florida they are seen in the villages, and resort to the orange groves about them, where they frequently breed. I have often found them in the inner court of the famous Spanish fort of St. Augustine, where I have been surprised to see them rise almost perpendicularly, to reach above the parapets, by which they insured their escape. They are easily caught in traps, and at that place are sold at 6¼ cents each. They readily become domesticated, and indeed so very gentle are they, that I have seen a pair which, having been caught at the time when their young were quite small, and placed in an aviary, at once covered the little ones, and continued to nourish them until full grown. They afterwards raised a second brood in the same nest, and showed great spirit in keeping the Jays and Starlings from their charge. In this aviary, which belonged to Dr. WILSON of Charleston, several other species bred, among which were the Carolina Dove, the Cardinal-bird, the Blue Grosbeak, the White-throated Sparrow, the Towhe Bunting, the Common Partridge, and the Wood Duck. The Ground Doves were fed on rice and other small grain.

The nest of this species is large for the size of the bird, and compact. Its exterior is composed of dry twigs, its interior of grasses disposed in a circular form. It is usually placed in low bushes or hedges, or in orange-trees in orchards. Early in April the female deposits her two pure white eggs; and sometimes three, but more generally two broods are reared in a season. The male struts before the female in the manner of the Barbary Ringed Dove.

A few of these birds remain all the year in the vicinity of Charleston, but the greater number retire either to the sea islands or to the Floridas. I met with them on the Keys resorted to by the Zenaida Dove, and saw some on Sandy Island, which lies six miles south from Cape Sable, the extreme point of the Peninsula. They were so gentle that I approached them within less than two yards. Their nest was placed on the top of a cactus, not more than two feet high. I took some pleasure in destroying a pair of Fish Crows, that were waiting an opportunity to deprive them of their young.

This beautiful Pigeon is rarely met with to the westward of the mouths of the Mississippi, along the coast of the Gulf of Mexico. None were seen on our way to the Texas. The eggs measure seven and a half eighths of an inch by rather more than five-eighths, and are thus of an elongated form.

In a wild state, the food of this species consists of grass-seeds and various small berries, with which they pick up a large proportion of gravel to assist digestion. They are extremely fond of dusting themselves in the sand,

lying down upon it for a long time, in the manner of Partridges and other Gallinaceous birds, to which indeed they are closely allied. Their flesh is excellent.

COLUMBA PASSERINA, Linn. Syst. Nat., vol. i. p. 285.
GROUND DOVE, *Columba passerina*, Wils. Amer. Orn., vol. iv. p. 15.
COLUMBA PASSERINA, Bonap. Syn., p. 120.
GROUND DOVE, *Columba passerina*, Aud. Amer. Ornith., vol. ii. p. 471; vol. v. p. 558.

Male, 6¾, 11. Female, 6¼.

Throughout the Floridas and their Keys, as well as from Louisiana to North Carolina, including Alabama and Georgia. Pretty abundant. Resident.

Adult Male.

Bill rather short, slender, feeble, compressed, straight; upper mandible with a tumid fleshy covering at the base, the tip rather obtuse, its margins sharp; lower mandible nearly straight in its dorsal outline. Nostrils medial, oblique, linear. Head small, roundish, neck short, body moderately full. Legs short; tarsus short, compressed, covered anteriorly with a few transverse scutella; toes free, slender, scutellate above; hind toe shorter and more slender, the two lateral equal, the middle one not much longer; claws short, compressed, deep, acute.

Plumage soft, blended, without gloss. Wings of moderate length; second quill longest, third nearly as long, first and fourth about equal; secondaries long and rounded; the first, second, and third primaries slight, cut out on the outer margin. Tail of moderate length, rounded, of twelve broad, rounded feathers.

Bill pale red, inclining to orange, dusky at the tip. Iris orange-red. Feet flesh coloured. Forehead, sides of the head, anterior and lateral parts of the neck, breast, and sides, light purplish-red or vinaceous, the central part of the neck-feathers dusky, hind head and posterior part of the neck pale blue, the feathers edged with dark grey. Back brownish-grey, as are the upper tail-coverts and two middle tail-feathers. Alula brownish-black, as are the ends of the primary-coverts, of which the bases are deep red; primaries deep red, broadly margined externally, and tipped with dusky brown. Secondary quills and their coverts pale grey, tinged with red; the smaller coverts and scapulars of a reddish colour like that of the breast, and showing oblong black spots glossed with purplish blue and green. Lower wing-coverts and under surface of the wings deep red; lower tail-coverts brownish-grey, tipped with white. Tail-feathers grey at the base, bluish-black towards the end, more or less tipped with grey, the outermost with a touch of white on its outer edge at the tip.

Blue headed Ground Dove or Pigeon.

Length 6¾ inches, extent of wings 11; bill along the back $\frac{5}{12}$, along the edge $\frac{7}{12}$; tarsus $\frac{7}{12}$.

Adult Female.

The female is paler in the tints, the colour above being light brownish-grey, the lower parts much lighter, the throat-feathers broadly margined with dull white. The forehead and wing-coverts are but slightly tinged with red, and the hind neck is less blue than in the male.

Length, 6¼ inches.

Young Bird.

The young resembles the female.

The Wild Orange.

Citrus aurantium, *Linn.*

THE BLUE-HEADED PIGEON, OR GROUND DOVE.

Starnænas cyanocephala, *Linn.*

PLATE CCLXXXIV.—Male and Females.

A few of these birds migrate each spring from the Island of Cuba to the Keys of Florida, but are rarely seen, on account of the deep tangled woods in which they live. Early in May, 1832, while on a shooting excursion with the commander of the United States Revenue Cutter Marion, I saw a pair of them on the western side of Key West. They were near the water, picking gravel, but on our approaching them they ran back into the thickets, which were only a few yards distant. Several fishermen and wreckers informed us that they were more abundant on the "Mule Keys;" but although a large party and myself searched these islands for a whole day, not one did we discover there. I saw a pair which I was told had been caught when young on the latter Keys, but I could not obtain any other information respecting them, than that they were fed on cracked corn and rice, which answered the purpose well.

I have represented three of these Pigeons on the ground, with some of

the creeping plants which grew in the place where I saw the pair mentioned above.

COLUMBA CYANOCEPHALA, Linn. Syst. Nat., vol. i. p. 282.
BLUE-HEADED PIGEON, *Columba cyanocephala*, Aud. Orn. Biog., vol. ii. p. 411.

Male, 12¼, 17½.

Accidental on the southernmost Florida Keys in summer only.

Adult Male.

Bill straight, and short, rather slender, compressed; upper mandible with a tumid fleshy covering at the base, a convex declinate obtuse tip, of which the margins are acute and overlapping; lower mandible with the angle near the extremity, which is compressed and rounded. Nostrils medial, oblique, linear. Head small and compressed; the general form robust, resembling that of many Partridges. Legs short and of moderate length; tarsus covered anteriorly and laterally with quincuncial sub-hexagonal scales, rounded and scaly behind; toes scutellate, free, margined; claws rather small, arched, compressed, flat beneath, obtuse.

Plumage compact all over. Wings short, rounded, third, fourth, and fifth quills longest and almost equal; second, third, fourth, fifth, and sixth slightly cut out on the outer web. Tail of moderate length, slightly rounded, of twelve broad rounded feathers.

Bill bright blue above, the fleshy parts at the base bright carmine. Iris very dark brown. Scales of the feet carmine, the interspaces white; claws bluish-grey. The general colour of the plumage above is a rich deep chocolate, slightly tinged with olive, beneath brownish-red, lighter on the middle of the breast, the sides and under tail coverts approaching to the tint of the back. The upper part of the head bright blue, encircled by a band of deep black, broader on the occiput, and very narrow in front; a band of white under the eye meeting its fellow on the chin, a broad patch of black on the fore-neck, margined with white beneath, and on the sides spotted with bright blue.

Length 12¼ inches, extent of wings 17½; bill along the ridge ½, along the edge 1; tarsus 1¼, middle toe 1¼; weight 10¼ oz.

The beautiful Cypress represented in this plate is quite abundant on all the dry Keys of the Floridas, and is also found in many parts of the interior of the peninsula.

Passenger Pigeon.

1. Male. 2. Female.

Drawn from Nature by J.J.Audubon,FRSELS. Lith^d Printed & Col^d by J.T.Bowen Phila^a

Genus III.—ECTOPISTES, *Swains.* LONG-TAILED DOVE.

Bill straight, of ordinary length, rather slender, broader than high at the base, with a tumid fleshy covering, compressed toward the end. Head small, oblong; neck of moderate length; body rather slender. Feet short; tarsus as short as the hind toe and claw, anteriorly scutellate; outer toe slightly shorter than inner; claws rather short, stout, arched, obtuse. Plumage compact above; blended, but firm beneath. Wings long; first and second quills longest, and about equal. Tail long, cuneate, pointed. Digestive organs as in the preceding genus.

THE PASSENGER PIGEON.

Ectopistes migratoria, *Linn.*

PLATE CCLXXXV.—Male and Female.

The Passenger Pigeon, or, as it is usually named in America, the Wild Pigeon, moves with extreme rapidity, propelling itself by quickly repeated flaps of the wings, which it brings more or less near to the body, according to the degree of velocity which is required. Like the Domestic Pigeon, it often flies, during the love season, in a circling manner, supporting itself with both wings angularly elevated, in which position it keeps them until it is about to alight. Now and then, during these circular flights, the tips of the primary quills of each wing are made to strike against each other, producing a smart rap, which may be heard at a distance of thirty or forty yards. Before alighting, the Wild Pigeon, like the Carolina Parrot and a few other species of birds, breaks the force of its flight by repeated flappings, as if apprehensive of receiving injury from coming too suddenly into contact with the branch or the spot of ground on which it intends to settle.

I have commenced my description of this species with the above account of its flight, because the most important facts connected with its habits relate to its migrations. These are entirely owing to the necessity of procuring food, and are not performed with the view of escaping the severity of a northern latitude, or of seeking a southern one for the purpose of breeding. They consequently do not take place at any fixed period or season of the year. Indeed, it sometimes happens that a continuance of a sufficient supply of food in one district will keep these birds absent from another for years. I know, at least, to a certainty, that in Kentucky they remained for several years constantly, and were nowhere else to be found. They all suddenly disappeared one season when the mast was exhausted, and did not return for a long period. Similar facts have been observed in other States.

Their great power of flight enables them to survey and pass over an astonishing extent of country in a very short time. This is proved by facts well known. Thus, Pigeons have been killed in the neighbourhood of New York, with their crops full of rice, which they must have collected in the fields of Georgia and Carolina, these districts being the nearest in which they could possibly have procured a supply of that kind of food. As their power of digestion is so great that they will decompose food entirely in twelve hours, they must in this case have travelled between three and four hundred miles in six hours, which shews their speed to be at an average of about one mile in a minute. A velocity such as this would enable one of these birds, were it so inclined, to visit the European continent in less than three days.

This great power of flight is seconded by as great a power of vision, which enables them, as they travel at that swift rate, to inspect the country below, discover their food with facility, and thus attain the object for which their journey has been undertaken. This I have also proved to be the case, by having observed them, when passing over a sterile part of the country, or one scantily furnished with food suited to them, keep high in the air, flying with an extended front, so as to enable them to survey hundreds of acres at once. On the contrary, when the land is richly covered with food, or the trees abundantly hung with mast, they fly low, in order to discover the part most plentifully supplied.

Their body is of an elongated oval form, steered by a long well-plumed tail, and propelled by well-set wings, the muscles of which are very large and powerful for the size of the bird. When an individual is seen gliding through the woods and close to the observer, it passes like a thought, and on trying to see it again, the eye searches in vain; the bird is gone.

The multitudes of Wild Pigeons in our woods are astonishing. Indeed,

after having viewed them so often, and under so many circumstances, I even now feel inclined to pause, and assure myself that what I am going to relate is fact. Yet I have seen it all, and that too in the company of persons who, like myself, were struck with amazement.

In the autumn of 1813, I left my house at Henderson, on the banks of the Ohio, on my way to Louisville. In passing over the Barrens a few miles beyond Hardensburgh, I observed the Pigeons flying from north-east to south-west, in greater numbers than I thought I had ever seen them before, and feeling an inclination to count the flocks that might pass within the reach of my eye in one hour, I dismounted, seated myself on an eminence, and began to mark with my pencil, making a dot for every flock that passed. In a short time finding the task which I had undertaken impracticable, as the birds poured on in countless multitudes, I rose, and counting the dots then put down, found that 163 had been made in twenty-one minutes. I travelled on, and still met more the farther I proceeded. The air was literally filled with Pigeons; the light of noon-day was obscured as by an eclipse; the dung fell in spots, not unlike melting flakes of snow; and the continued buzz of wings had a tendency to lull my senses to repose.

Whilst waiting for dinner at YOUNG's inn at the confluence of Salt river with the Ohio, I saw, at my leisure, immense legions still going by, with a front reaching far beyond the Ohio on the west, and the beech-wood forests directly on the east of me. Not a single bird alighted; for not a nut or acorn was that year to be seen in the neighbourhood. They consequently flew so high, that different trials to reach them with a capital rifle proved ineffectual; nor did the reports disturb them in the least. I cannot describe to you the extreme beauty of their aerial evolutions, when a Hawk chanced to press upon the rear of a flock. At once, like a torrent, and with a noise like thunder, they rushed into a compact mass, pressing upon each other towards the centre. In these almost solid masses, they darted forward in undulating and angular lines, descended and swept close over the earth with inconceivable velocity, mounted perpendicularly so as to resemble a vast column, and, when high, were seen wheeling and twisting within their continued lines, which then resembled the coils of a gigantic serpent.

Before sunset I reached Louisville, distant from Hardensburgh fifty-five miles. The Pigeons were still passing in undiminished numbers, and continued to do so for three days in succession. The people were all in arms. The banks of the Ohio were crowded with men and boys, incessantly shooting at the pilgrims, which there flew lower as they passed the river. Multitudes were thus destroyed. For a week or more, the population fed on no other flesh than that of Pigeons, and talked of nothing but Pigeons.

It is extremely interesting to see flock after flock performing exactly the

same evolutions which had been traced as it were in the air by a preceding flock. Thus, should a Hawk have charged on a group at a certain spot, the angles, curves, and undulations, that have been described by the birds, in their efforts to escape from the dreaded talons of the plunderer, are undeviatingly followed by the next group that comes up. Should the bystander happen to witness one of these affrays, and, struck with the rapidity and elegance of the motions exhibited, feel desirous of seeing them repeated, his wishes will be gratified if he only remain in the place until the next group comes up.

As soon as the Pigeons discover a sufficiency of food to entice them to alight, they fly around in circles, reviewing the country below. During their evolutions, on such occasions, the dense mass which they form exhibits a beautiful appearance, as it changes its direction, now displaying a glistening sheet of azure, when the backs of the birds come simultaneously into view, and anon, suddenly presenting a mass of rich deep purple. They then pass lower, over the woods, and for a moment are lost among the foliage, but again emerge, and are seen gliding aloft. They now alight, but the next moment, as if suddenly alarmed, they take to wing, producing by the flapping of their wings a noise like the roar of distant thunder, and sweep through the forests to see if danger is near. Hunger, however, soon brings them to the ground. When alighted, they are seen industriously throwing up the withered leaves in quest of the fallen mast. The rear ranks are continually rising, passing over the main-body, and alighting in front, in such rapid succession, that the whole flock seems still on wing. The quantity of ground thus swept is astonishing, and so completely has it been cleared, that the gleaner who might follow in their rear would find his labour completely lost. Whilst feeding, their avidity is at times so great that in attempting to swallow a large acorn or nut, they are seen gasping for a long while, as if in the agonies of suffocation.

On such occasions, when the woods are filled with these Pigeons, they are killed in immense numbers, although no apparent diminution ensues. About the middle of the day, after their repast is finished, they settle on the trees, to enjoy rest, and digest their food. On the ground they walk with ease, as well as on the branches, frequently jerking their beautiful tail, and moving the neck backwards and forwards in the most graceful manner. As the sun begins to sink beneath the horizon, they depart *en masse* for the roosting-place, which not unfrequently is hundreds of miles distant, as has been ascertained by persons who have kept an account of their arrivals and departures.

Let us now, kind reader, inspect their place of nightly rendezvous. One of these curious roosting-places, on the banks of the Green river in Kentucky,

I repeatedly visited. It was, as is always the case, in a portion of the forest where the trees were of great magnitude, and where there was little under wood. I rode through it upwards of forty miles, and, crossing it in different parts, found its average breadth to be rather more than three miles. My first view of it was about a fortnight subsequent to the period when they had made choice of it, and I arrived there nearly two hours before sunset. Few Pigeons were then to be seen, but a great number of persons, with horses and wagons, guns and ammunition, had already established encampments on the borders. Two farmers from the vicinity of Russelsville, distant more than a hundred miles, had driven upwards of three hundred hogs to be fattened on the Pigeons which were to be slaughtered. Here and there, the people employed in plucking and salting what had already been procured, were seen sitting in the midst of large piles of these birds. The dung lay several inches deep, covering the whole extent of the roosting-place. Many trees two feet in diameter, I observed, were broken off at no great distance from the ground; and the branches of many of the largest and tallest had given way, as if the forest had been swept by a tornado. Everything proved to me that the number of birds resorting to this part of the forest must be immense beyond conception. As the period of their arrival approached, their foes anxiously prepared to receive them. Some were furnished with iron-pots containing sulphur, others with torches of pine-knots, many with poles, and the rest with guns. The sun was lost to our view, yet not a Pigeon had arrived. Everything was ready, and all eyes were gazing on the clear sky, which appeared in glimpses amidst the tall trees. Suddenly there burst forth a general cry of "Here they come!" The noise which they made, though yet distant, reminded me of a hard gale at sea, passing through the rigging of a close-reefed vessel. As the birds arrived and passed over me, I felt a current of air that surprised me. Thousands were soon knocked down by the pole-men. The birds continued to pour in. The fires were lighted, and a magnificent, as well as wonderful and almost terrifying, sight presented itself. The Pigeons, arriving by thousands, alighted everywhere, one above another, until solid masses were formed on the branches all round. Here and there the perches gave way under the weight with a crash, and, falling to the ground, destroyed hundreds of the birds beneath, forcing down the dense groups with which every stick was loaded. It was a scene of uproar and confusion. I found it quite useless to speak, or even to shout to those persons who were nearest to me. Even the reports of the guns were seldom heard, and I was made aware of the firing only by seeing the shooters reloading.

No one dared venture within the line of devastation. The hogs had been penned up in due time, the picking up of the dead and wounded being left

for the next morning's employment. The Pigeons were constantly coming, and it was past midnight before I perceived a decrease in the number of those that arrived. The uproar continued the whole night; and as I was anxious to know to what distance the sound reached, I sent off a man, accustomed to perambulate the forest, who, returning two hours afterwards, informed me he had heard it distinctly when three miles distant from the spot. Towards the approach of day, the noise in some measure subsided: long before objects were distinguishable, the Pigeons began to move off in a direction quite different from that in which they had arrived the evening before, and at sunrise all that were able to fly had disappeared. The howlings of the wolves now reached our ears, and the foxes, lynxes, cougars, bears, racoons, opossums, and pole-cats were seen sneaking off, whilst eagles and hawks of different species, accompanied by a crowd of vultures, came to supplant them, and enjoy their share of the spoil.

It was then that the authors of all this devastation began their entry amongst the dead, the dying, and the mangled. The Pigeons were picked up and piled in heaps, until each had as many as he could possibly dispose of, when the hogs were let loose to feed on the remainder.

Persons unacquainted with these birds might naturally conclude that such dreadful havoc would soon put an end to the species. But I have satisfied myself, by long observation, that nothing but the gradual diminution of our forests can accomplish their decrease, as they not unfrequently quadruple their numbers yearly, and always at least double it. In 1805 I saw schooners loaded in bulk with Pigeons caught up the Hudson river, coming in to the wharf at New York, when the birds sold for a cent apiece. I knew a man in Pennsylvania, who caught and killed upwards of 500 dozens in a clap-net in one day, sweeping sometimes twenty dozens or more at a single haul. In the month of March, 1830, they were so abundant in the markets of New York, that piles of them met the eye in every direction. I have seen the Negroes at the United States Salines or Saltworks of Shawanee Town, wearied with killing Pigeons, as they alighted to drink the water issuing from the leading pipes, for weeks at a time; and yet in 1826, in Louisiana, I saw congregated flocks of these birds as numerous as ever I had seen them before, during a residence of nearly thirty years in the United States.

The breeding of the Wild Pigeons, and the places chosen for that purpose, are points of great interest. The time is not much influenced by season, and the place selected is where food is most plentiful and most attainable, and always at a convenient distance from water. Forest-trees of great height are those in which the Pigeons form their nests. Thither the countless myriads resort, and prepare to fulfil one of the great laws

of nature. At this period the note of the Pigeon is a soft *coo–coo–coo–coo*, much shorter than that of the domestic species. The common notes resemble the monosyllables *kee–kee–kee–kee*, the first being the loudest, the others gradually diminishing in power. The male assumes a pompous demeanour, and follows the female, whether on the ground or on the branches, with spread tail and drooping wings, which it rubs against the part over which it is moving. The body is elevated, the throat swells, the eyes sparkle. He continues his notes, and now and then rises on the wing, and flies a few yards to approach the fugitive and timorous female. Like the domestic Pigeon and other species, they caress each other by billing, in which action, the bill of the one is introduced transversely into that of the other, and both parties alternately disgorge the contents of their crop by repeated efforts. These preliminary affairs are soon settled, and the pigeons commence their nests in general peace and harmony. They are composed of a few dry twigs, crossing each other, and are supported by forks of the branches. On the same tree from fifty to a hundred nests may frequently be seen :—I might say a much greater number, were I not anxious, kind reader, that however wonderful my account of the Wild Pigeon is, you may not feel disposed to refer it to the marvellous. The eggs are two in number, of a broadly elliptical form, and pure white. During incubation, the male supplies the female with food. Indeed, the tenderness and affection displayed by these birds towards their mates, are in the highest degree striking. It is a remarkable fact, that each brood generally consists of a male and a female.

Here again, the tyrant of the creation, man, interferes, disturbing the harmony of this peaceful scene. As the young birds grow up, their enemies, armed with axes, reach the spot, to seize and destroy all they can. The trees are felled, and made to fall in such a way that the cutting of one causes the overthrow of another, or shakes the neighbouring trees so much, that the young Pigeons, or *squabs*, as they are named, are violently hurried to the ground. In this manner also, immense quantities are destroyed.

The young are fed by the parents in the manner described above; in other words, the old bird introduces its bill into the mouth of the young one in a transverse manner, or with the back of each mandible opposite the separations of the mandibles of the young bird, and disgorges the contents of its crop. As soon as the young birds are able to shift for themselves, they leave their parents, and continue separate until they attain maturity. By the end of six months they are capable of reproducing their species.

The flesh of the Wild Pigeon is of a dark colour, but affords tolerable eating. That of young birds from the nest is much esteemed. The skin is covered with small white filmy scales. The feathers fall off at the least

touch, as has been remarked to be the case in the Carolina Turtle-dove. I have only to add, that this species, like others of the same genus, immerses its head up to the eyes while drinking.

In March, 1830, I bought about 350 of these birds in the market of New York, at four cents apiece. Most of these I carried alive to England, and distributed them amongst several noblemen, presenting some at the same time to the Zoological Society.

This celebrated bird is mentioned by Dr. RICHARDSON as "annually reaching the 62nd degree of latitude, in the warm central districts of the Fur Countries, and attaining the 58th parallel on the coast of Hudson's Bay in very fine summers only. Mr. HUTCHINS mentions a flock which visited York Factory and remained there two days, in 1775, as a very remarkable occurrence. A few hordes of Indians that frequent the low flooded tracts at the south end of Lake Winnipeg, subsist principally on the Pigeons, during a part of the summer, when the sturgeon-fishery is unproductive, and the *Zizania aquatica* has not yet ripened; but farther north, these birds are too few in number to furnish a material article of diet." Mr. TOWNSEND states that this species is found on the Rocky Mountains, but not on the Columbia river, where the Band-tailed Pigeon, *Columba fasciata* of Say, is abundant. Whilst in the Texas, I was assured that the Passenger Pigeon was plentiful there, although at irregular intervals. In the neighbourhood of Boston it arrives, as Dr. T. M. BREWER informs me, in small scattered flocks, much less numerous than in the interior of that State.

My friend Dr. BACHMAN says, in a note sent to me, "In the more cultivated parts of the United States, these birds now no longer breed in communities. I have secured many nests scattered throughout the woods, seldom near each other. Four years ago, I saw several on the mountains east of Lansinburgh, in the State of New York. They were built close to the stems of thin but tall pine trees (*Pinus strobus*), and were composed of a few sticks; the eggs invariably two, and white. There is frequently but one young bird in the nest, probably from the loose manner in which it has been constructed, so that either a young bird or an egg drops out. Indeed, I have found both at the foot of the tree. This is no doubt accidental, and not to be attributed to a habit which the bird may be supposed to have of throwing out an egg or one of its young. I have frequently taken two of the latter from the same nest and reared them. The Wild Pigeons appear in Carolina during winter at irregular periods, sometimes in cold, but often in warm weather, driven here no doubt, as you have mentioned, not by the cold, but by a failure of mast in the western forests."

A curious change of habits has taken place in England in those Pigeons which I presented to the Earl of DERBY in 1830, that nobleman having

assured me that ever since they began breeding in his aviaries, they have laid only one egg. My noble friend has raised a great number of these birds, and has distributed them freely. It is not, therefore, very surprising that some which have escaped from confinement have been shot; but that this species should naturally have a claim to be admitted into the British Fauna appears to me very doubtful. The eggs measure one inch five-eighths in length, one inch one-eighth and a half in breadth, and are nearly equally rounded at both ends.

COLUMBA MIGRATORIA, Linn. Syst. Nat., vol. i. p. 285.

PASSENGER PIGEON, *Columba migratoria*, Wils. Amer. Orn., vol. i. p. 102.

COLUMBA MIGRATORIA, Bonap. Syn., p. 120.

COLUMBA (ECTOPISTES) MIGRATORIA, Swains. and Rich. F. Bor. Amer., vol. ii. p. 363.

PASSENGER PIGEON, Nutt. Man., vol. i. p. 629.

PASSENGER PIGEON, *Columba migratoria*; Aud. Orn. Biog., vol. i. p. 319; vol. v. p. 551.

Male, 16¼, 25. Female, 15, 23.

Wanders continually in search of food throughout all parts of North America. Wonderfully abundant at times in particular districts.

Adult Male.

Bill straight, of ordinary length, rather slender, broader than deep at the base, with a tumid fleshy covering above, compressed towards the end, rather obtuse; upper mandible slightly declinate at the tip; edges inflected. Head small, neck slender, body rather full. Legs short and strong; tarsus rather rounded, anteriorly scutellate; toes slightly webbed at the base; claws short, depressed, obtuse.

Plumage blended on the neck and under parts, compact on the back. Wings long, the second quill longest. Tail graduated, of twelve tapering feathers.

Bill black. Iris bright red. Feet carmine purple, claws blackish. Head above and on the sides light blue. Throat, fore-neck, breast, and sides, light brownish red, the rest of the under parts white. Lower part of the neck behind and along the sides, changing to gold, emerald-green, and rich crimson. The general colour of the upper parts is greyish-blue, some of the wing-coverts marked with a black spot. Quills and larger wing-coverts blackish, the primary quills bluish on the outer web, the larger coverts whitish at the tip. The two middle feathers of the tail black, the rest pale blue at the base, becoming white towards the end.

Adult Female.

The colours of the female are much duller than those of the male, although their distribution is the same. The breast is light greyish-brown, the upper

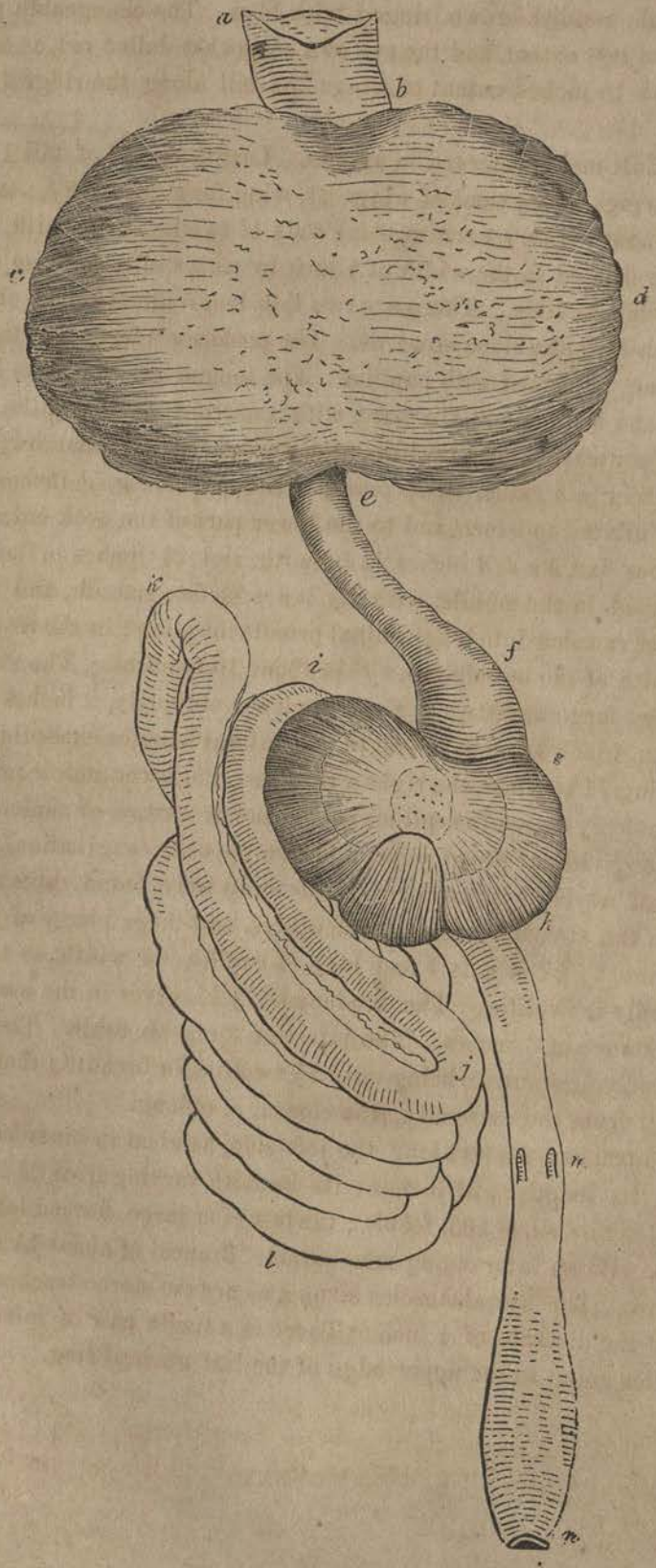
parts pale reddish-brown, tinged with blue. The changeable spot on the neck is of less extent, and the eye of a somewhat duller red, as are the feet.

Length 15 inches, extent of wings 23; bill along the ridge $\frac{3}{4}$, along the gap $\frac{5}{6}$.

An adult male preserved in spirits. Length to end of tail 17 inches, to end of wings 12¾; extent of wings 24, wing from flexure $8\frac{3}{12}$; tail 8.

The mouth is very narrow, being only 4½ twelfths in breadth, but capable of being dilated to the width of 1 inch by means of a joint on each side of the lower mandible. There are two thin longitudinal ridges on the palate, of which the sides slope upwards. The posterior aperture of the nares is ½ inch long, margined with papillæ. The tongue is 7½ twelfths long, rather broad and sagittate at the base, with numerous small papillæ, but at the middle contracted to 1½ twelfths, afterwards horny, very narrow, induplicate, and ending in a rather sharp point. Œsophagus, *a g*, 5½ inches long, immediately dilated to 1 inch, and to the lower part of the neck enlarged into an enormous sac, *b c d*, 3 inches in breadth, and 2½ inches in length, a little contracted in the middle, with its inner surface smooth, and at the lower aperture running into longitudinal prominent plicæ; in the rest of its extent the width of the œsophagus, *e f*, is about 10 twelfths. The stomach, *g h i*, is a very large and strong gizzard, placed obliquely, 2 inches 2 twelfths in breadth, 1 inch 1 fourth in length; its lateral muscles exceedingly thick, the left being 7¼ twelfths, the right 8 twelfths; the lower muscle prominent; the tendons very large; the epithelium of a horny texture, of moderate thickness, with longitudinal broad rugæ, and two opposite longitudinal grinding surfaces, of a yellowish colour. In the crop were found three entire acorns, and in the stomach fragments of others, and three pieces of quartz. The intestine, *i j k l m n*, is 4 feet long, 4 twelfths in width, at the narrowest part only 2 twelfths. The duodenum, *i j k*, curves in the usual manner, at the distance of 3 inches. The intestine forms six folds. The cœca, *m*, are extremely diminutive, being only 1½ twelfths in breadth; they are 2 inches distant from the extremity; the cloaca, *n*, oblong.

The trachea passes along the left side, as usual in birds having a large crop; its length is 2¾ inches; its breadth varying from 2¾ twelfths to 1½ twelfths; its rings 105, feeble; the last ring large, formed laterally of two rings, with an intervening membrane. Bronchi of about 15 half rings, and narrow. The lateral muscles strong, as are the sterno-tracheal, which come off at the distance of ½ inch. There is a single pair of inferior laryngeal muscles going to the upper edge of the last tracheal ring.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THE CAROLINA TURTLE-DOVE.

ECTOPISTES CAROLINENSIS, *Linn.*

PLATE CCLXXXVI.—MALES AND FEMALES.

I have tried, kind reader, to give you a faithful representation of two as gentle pairs of Turtles as ever cooed their loves in the green woods. I have placed them on a branch of *Stuartia*, which you see ornamented with a profusion of white blossoms, emblematic of purity and chastity.

Look at the female, as she assiduously sits on her eggs, embosomed among the thick foliage, receiving food from the bill of her mate, and listening with delight to his assurances of devoted affection. Nothing is wanting to render the moment as happy as could be desired by any couple on a similar occasion.

On the branch above, a love scene is just commencing. The female, still coy and undetermined, seems doubtful of the truth of her lover, and virgin-like resolves to put his sincerity to the test, by delaying the gratification of his wishes. She has reached the extremity of the branch, her wings and tail are already opening, and she will fly off to some more sequestered spot, where, if her lover should follow her with the same assiduous devotion, they will doubtless become as blessed as the pair beneath them.

The Dove announces the approach of spring. Nay, she does more—she forces us to forget the chilling blasts of winter, by the soft and melancholy sound of her cooing. Her heart is already so warmed and so swelled by the ardour of her passion, that it feels as ready to expand as the buds on the trees are, under the genial influence of returning heat.

The flight of this bird is extremely rapid, and of long duration. Whenever it starts from a tree or the ground, on being unexpectedly approached, its wings produce a whistling noise, heard at a considerable distance. On such occasions, it frequently makes several curious windings through the air, as if to prove its capability of efficient flight. It seldom rises far above the trees, and as seldom passes through dense woods or forests, but prefers following their margins, or flying about the fences and fields. Yet, during spring, and particularly whilst the female is sitting on her eggs, the male rises as if about to ascend to a great height in the air, flapping his wings, but all of a sudden comes downwards again, describing a large circle, and sailing smoothly with wings and tail expanded, until in this manner he alights on

Carolina Turtle Dove.

1. Males 2. Females.

White flowered Stuartia. Stuartia Malacodendron.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S. Lith.ed Printed & Col.d by J. T. Bowen Phila.a

the tree where his mate is, or on one very near it. These manœuvres are frequently repeated during the days of incubation, and occasionally when the male bird is courting the female. No sooner do they alight than they jerk out their tail in a very graceful manner, and balance their neck and head. Their migrations are not so extensive as those of the Wild Pigeon (*Ectopistes migratoria*); nor are they performed in such numbers, two hundred and fifty or three hundred Doves together being considered a large flock.

On the ground, along the fences, or on the branches of trees, the Carolina Turtle walks with great ease and grace, frequently jerking its tail. It is able to run with some swiftness when searching for food in places where it is scarce. It seldom bathes, but drinks by swallowing the water in long draughts, with the bill deeply immersed, frequently up to the eyes.

They breed in every portion of the United States that I have visited, and according to the temperature of different localities, rear either one or two broods in the season. In Louisiana, they lay eggs early in April, and sometimes in the month of March, and have there two broods. In the State of Connecticut, they seldom begin to lay before the middle of May, and as seldom have more than one brood. On the borders of Lake Superior, they are still later. They lay two eggs of a pure white colour, and having some degree of translucency. They make their nest in any kind of tree, on horizontal branches or twigs. It is formed of a few dry sticks, so loosely put together, as to appear hardly sufficient to keep the eggs or young from falling.

The roosting places which the Carolina Turtles prefer are among the long grasses found growing in abandoned fields, at the foot of dry stalks of maize, or on the edges of meadows, although they occasionally resort to the dead foliage of trees, as well as that of different species of evergreens. But in all these places they rise and fly at the approach of man, however dark the night may be, which proves that the power of sight which they then possess is very great. They seldom place themselves very near each other when roosting on the ground, but sometimes the individuals of a flock appear diffused pretty equally over a whole field. In this particular, they greatly differ from our Common Wild Pigeon, which settles in compact masses on the limbs of trees during the night. The Doves, however, like the Pigeons, are fond of returning to the same roosting grounds from considerable distances. A few individuals sometimes mix with the Wild Pigeons, as do the latter sometimes with the Doves.

The Turtle-Dove may with propriety be considered more as a gleaner than as a reaper of the husbandman's fields, scarcely ever committing any greater depredation than the picking up of a few grains in seed-time, after

which it prefers resorting to those fields from which the grain has been cut and removed. It is a hardy bird, and stands the severest winters of our Middle States, where some remain the whole year.

The flesh of these birds is remarkably fine, when they are obtained young and in the proper season. Such birds become extremely fat, are tender and juicy, and in flavour equal in the estimation of some of my friends, as well as in my own, to that of the Snipe or even the Woodcock; but as taste in such matters depends much on circumstances, and perhaps on the whim of individuals, I would advise you, reader, to try for yourself. These birds require good shooting to bring them down, when on wing, for they fly with great swiftness, and not always in a direct manner. It is seldom that more than one can be killed at a shot when they are flying, and rarely more than two or three when on the ground, on account of their natural propensity to keep apart.

In winter, they approach the farm-houses, feed among the Poultry, Sparrows, Grakles, and many other birds, and appear very gentle; but no sooner are they frequently disturbed or shot at, than they become extremely shy. When raised from the nest, they are easily tamed. I have even known some instances of their breeding in confinement. When caught in traps and cooped, they feed freely, and soon become fat, when they are excellent for the table.

When shot, or taken alive in the hand, this and our other species of Pigeon, lose the feathers on the slightest touch, a circumstance peculiar to the genus, and to certain gallinaceous birds.

This species does not extend very far eastward or northward. It is exceedingly rare in New Brunswick and Nova Scotia, and none were seen by my party in Newfoundland or Labrador. Dr. RICHARDSON makes no mention of it as having been observed in the Fur Countries. Yet it was met with on the shores of the Columbia river by Mr. TOWNSEND, who informs me, that although *Ectopistes migratoria* is found on the Rocky Mountains, *E. carolinensis* and *Columba fasciata* are the only species which he observed on the Columbia. On the other hand, I found the present species abundant in the Texas, where it was breeding on the ground, as well as on low bushes, and feeding on blackberries late in the month of April.

The Carolina Dove breeds in aviaries, even although caught when old, raising several broods in the season, insomuch that my friends Dr. BACHMAN and Dr. SAMUEL WILSON, of Charleston, have had to kill the young for the table. The former intimates to me that a male was put into a cage with a female European Turtle-Dove, on which they paired, formed a nest, and laid eggs, but the cage having accidentally fallen, the eggs, which now contained young, were broken, and the Carolina Dove escaped. The same

friend has found this species breeding on the ground in the States of New York and South Carolina, among tall wheat and rye. In the latter country it is very numerous during winter, and is shot in great numbers by sportsmen, who hide themselves under low huts at the foot of moderately tall trees, such as persimons, while their servants drive the Doves from the adjacent fields. In this manner more than a hundred have been shot by one man in the course of a morning. When snow is on the ground, wonderful havoc is committed among them, and he has heard of a party of sportsmen having shot about five hundred in one day.

The egg of the Carolina Dove measures one inch one-eighth in length, by five and a half eighths in breadth, is equally rounded at both ends, and is of a pure white colour, somewhat translucent.

The *Stuartia Malacodendron*, on which I have placed the two pairs alluded to at the commencement of this article, is a tree of small height, which grows in rich grounds at the foot of hills not far from water-courses. The wood is brittle and useless, the flower destitute of scent, but extremely agreeable to the eye. Little clusters of twenty or thirty of these trees are dispersed over the southernmost of the United States. I have never met with it in the Middle, Western or Northern Districts.

COLUMBA CAROLINENSIS, Linn. Syst. Nat., vol. i. p. 286.

CAROLINA PIGEON OR TURTLE-DOVE, *Columba carolinensis*, Wils. Amer. Orn., vol. v. p. 91.

COLUMBA CAROLINENSIS, Bonap. Syn., p. 119.

CAROLINA PIGEON OR TURTLE-DOVE, Nutt. Man., vol. i. p. 626.

CAROLINA TURTLE-DOVE, *Columba carolinensis*, Aud. Orn. Biog., vol. i. p. 91; vol. v. p. 555.

Male, 12, 17. Female, 11, 15½.

Breeds from Texas to Massachusetts, and throughout the interior to the eastern bases of the Rocky Mountains, and again on the Columbia river. Common. Resident in all the Southern Districts.

Adult Male.

Bill straight, of ordinary length, rather slender, broader than deep at the base, with a tumid fleshy covering, compressed towards the end, rather obtuse; upper mandible slightly declinate at the tip; edges involute. Head small. Neck slender. Body rather full. Legs short and strong; tarsus covered anteriorly with scutella, rather rounded; toes scutellate, slightly webbed at the base; claws short, depressed, obtuse.

Plumage compact on the back, blended and soft on the head, neck and under parts. Wings long, second quill longest. Tail wedge-shaped, long, of fourteen feathers, the middle ones tapering, the rest obtuse.

Bill blackish, at the base carmine-purple. Iris hazel; orbit greenish-blue.

Feet carmine-purple; claws dusky. Crown of the head, and upper part of the neck, bright greenish-blue; the rest of the upper parts, including the wing-coverts, light yellowish brown, tinged with light blue, of which colour are the edges of the wings, and the outer webs of the quills towards the base. Some of the proximal wing-coverts spotted with black. Forehead and sides of the head brownish-yellow, which colour predominates on the under parts, the breast and neck tinged with blue, and the abdomen and under tail-coverts paler. Quills dusky, margined externally with whitish, the last secondaries light brown and spotted with black. The two middle tail-feathers, and the outer webs of the next five on each side like the back; all the feathers, excepting the middle ones, have a spot of black about an inch from their extremity, the space between which and the base is bright greenish-blue, that beyond it being paler and tinged with brown, excepting in the three outer feathers, where it is white, as is the outer web of the outermost.

Length 12 inches, extent of wings 17; bill along the ridge $\frac{7}{12}$, along the gap $\frac{3}{4}$.

Adult Female

The female is somewhat duller in the tints of the plumage; the bright blue of the head is wanting, that part being coloured like the back; the neck and breast have less blue, and the white of the tail is less pure.

Length 11 inches, extent of wings $15\frac{1}{2}$; bill as in the male.

The White-flowered Stuartia.

Stuartia Malacodendron, *Willd.* Sp. Pl., vol. iii. p. 840.—Stuartia virginica, *Pursh*, Fl. Amer., vol. ii. p. 451.—Monadelphia Polyandria, *Linn.*

A small tree, with smooth spreading branches; ovate-acute leaves, generally entire at the margins; axillar flowers, which are solitary, or two together; large white corollas, of five rounded petals, and reddish-purple stamina. The leaves vary in being sometimes serrated, and more or less downy. It flowers from June to September.

FAMILY XXX.—PAVONINÆ. PAVONINE BIRDS.

Bill rather short, moderately stout, broader than high at the base, somewhat compressed toward the end; upper mandible with its extremity arched, thin-edged, and obtuse; lower narrowed and blunt. Head partially denuded, rather small, oblong; neck long; body very large. Feet stout, rather long; tarsus anteriorly scutellate; hind toe elevated, anterior toes webbed at the base. Claws rather denuded, obtuse. Plumage full, the feathers with a very large plumule and short tube; those of the hind part of the back much developed. Wings of moderate length, convex, rounded. Tail very large, of more than twelve feathers. Tongue triangular, pointed; œsophagus dilated into an enormous crop; stomach a very powerful gizzard, roundish, or transversely elliptical, with very large muscles, and dense epithelium, having two concave grinding surfaces; intestines long, and rather wide; cœca very large, oblong, internally with elevated reticulated ridges. Trachea cylindrical, without inferior laryngeal muscles. Nest on the ground, rudely constructed. Eggs numerous. Young covered with stiffish down.

Genus I.—MELEAGRIS, *Linn.* TURKEY.

Bill rather short, moderately stout, nearly straight, broader than high at the base, somewhat compressed toward the end; upper mandible with the dorsal line sloping and straight, toward the end decurved, nasal membrane large and bare, ridge and sides rounded, edges sharp, without notch, tip thin-edged, rounded; lower mandible with the angle very long, and rather wide, the dorsal line slightly convex, the edges sharp toward the end, decurved, the tip thin-edged and obtuse. Nostrils linear, with a large horny operculum. Head bare, with a long fleshy wattle at the base of the bill; neck bare, carunculate, slightly feathered behind. Head small, oblong; neck rather long; body very full. Feet large and strong; tarsus rather long, stout, compressed, with two rows of scutella in front, and the same behind, where there is also a conical slightly recurved spur, about a third from the

lower extremity; toes of moderate length, stout, scutella; first small and elevated; lateral about equal, third much longer; anterior webbed at the base. Claws of moderate length, stout, arched, somewhat compressed, obtuse. Plumage compact, glossy; feathers very broad and truncate; those of the rump elongated. Wings of moderate length, concave, much rounded, with the fourth and fifth quills longest; secondaries very long and broad. Tail rather long, very broad, much rounded, of fourteen or eighteen very broad, broadly rounded feathers. Œsophagus dilated into a very large crop; stomach transversely elliptical, extremely muscular; intestines long and wide; cœca very large, oblong.

THE WILD TURKEY.

MELEAGRIS GALLOPAVO, *Linn.*

PLATE CCLXXXVII.—MALE. PLATE CCLXXXVIII.—FEMALE.

The great size and beauty of the Wild Turkey, its value as a delicate and highly prized article of food, and the circumstance of its being the origin of the domestic race now generally dispersed over both continents, render it one of the most interesting of the birds indigenous to the United States of America.

The unsettled parts of the States of Ohio, Kentucky, Illinois, and Indiana, an immense extent of country to the north-west of these districts, upon the Mississippi and Missouri, and the vast regions drained by these rivers from their confluence to Louisiana, including the wooded parts of Arkansas, Tennessee, and Alabama, are the most abundantly supplied with this magnificent bird. It is less plentiful in Georgia and the Carolinas, becomes still scarcer in Virginia and Pennsylvania, and is now very rarely seen to the eastward of the last mentioned States. In the course of my rambles through Long Island, the State of New York, and the country around the Lakes, I did not meet with a single individual, although I was informed that some exist in those parts. Turkeys are still to be found along the whole line of the Alleghany Mountains, where they have become so wary as to be approached only with extreme difficulty. While in the Great Pine Forest in 1829, I found a single feather that had been dropped from the tail of a

N°58.

Wild Turkey.

Male.

Drawn from Nature by J.J. Audubon. F.R.S.F.L.S.

Lith & Col. Bowen & Co. Philada.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S.

Lith.& Col. Bowen & Co. Philad.ª

Wild Turkey

Female & Young.

female, but saw no bird of the kind. Farther eastward I do not think they are now to be found. I shall describe the manners of this bird as observed in the countries where it is most abundant, and having resided for many years in Kentucky and Louisiana, may be understood as referring chiefly to them.

The Turkey is irregularly migratory, as well as irregularly gregarious. With reference to the first of these circumstances, I have to state, that whenever the *mast* of one portion of the country happens greatly to exceed that of another, the Turkeys are insensibly led toward that spot, by gradually meeting in their haunts with more fruit the nearer they advance towards the place where it is most plentiful. In this manner flock follows after flock, until one district is entirely deserted, while another is, as it were, overflowed by them. But as these migrations are irregular, and extend over a vast expanse of country, it is necessary that I should describe the manner in which they take place.

About the beginning of October, when scarcely any of the seeds and fruits have yet fallen from the trees, these birds assemble in flocks, and gradually move towards the rich bottom lands of the Ohio and Mississippi. The males, or, as they are more commonly called, the *gobblers*, associate in parties of from ten to a hundred, and search for food apart from the females; while the latter are seen either advancing singly, each with its brood of young, then about two-thirds grown, or in connexion with other families, forming parties often amounting to seventy or eighty individuals, all intent on shunning the old cocks, which, even when the young birds have attained this size, will fight with, and often destroy them by repeated blows on the head. Old and young, however, all move in the same course, and on foot, unless their progress be interrupted by a river, or the hunter's dog force them to take wing. When they come upon a river, they betake themselves to the highest eminences, and there often remain a whole day, or sometimes two, as if for the purpose of consultation. During this time the males are heard *gobbling*, calling, and making much ado, and are seen strutting about, as if to raise their courage to a pitch befitting the emergency. Even the females and young assume something of the same pompous demeanour, spread out their tails, and run round each other, *purring* loudly, and performing extravagant leaps. At length, when the weather appears settled, and all round is quiet, the whole party mount to the tops of the highest trees, whence, at a signal, consisting of a single *cluck*, given by a leader, the flock takes flight for the opposite shore. The old and fat birds easily get over, even should the river be a mile in breadth; but the younger and less robust frequently fall into the water,—not to be drowned, however, as might be imagined. They bring their wings close to their body, spread out their

tail as a support, stretch forward their neck, and striking out their legs with great vigour, proceed rapidly towards the shore; on approaching which, should they find it too steep for landing, they cease their exertions for a few moments, float down the stream until they come to an accessible part, and by a violent effort generally extricate themselves from the water. It is remarkable that immediately after thus crossing a large stream, they ramble about for some time, as if bewildered. In this state, they fall an easy prey to the hunter.

When the Turkeys arrive in parts where the mast is abundant, they separate into smaller flocks, composed of birds of all ages and both sexes, promiscuously mingled, and devour all before them. This happens about the middle of November. So gentle do they sometimes become after these long journeys, that they have been seen to approach the farm-houses, associate with the domestic fowls, and enter the stables and corn-cribs in quest of food. In this way, roaming about the forests, and feeding chiefly on mast, they pass the autumn and part of the winter.

As early as the middle of February, they begin to experience the impulse of propagation. The females separate, and fly from the males. The latter strenuously pursue, and begin to gobble or to utter the notes of exultation. The sexes roost apart, but at no great distance from each other. When a female utters a call-note, all the gobblers within hearing return the sound, rolling note after note with as much rapidity as if they intended to emit the last and the first together, not with spread tail, as when fluttering round the females on the ground, or practising on the branches of the trees on which they have roosted for the night, but much in the manner of the domestic Turkey, when an unusual or unexpected noise elicits its singular hubbub. If the call of the female comes from the ground, all the males immediately fly towards the spot, and the moment they reach it, whether the hen be in sight or not, spread out and erect their tail, draw the head back on the shoulders, depress their wings with a quivering motion, and strut pompously about, emitting at the same time a succession of puffs from the lungs, and stopping now and then to listen and look. But whether they spy the female or not, they continue to puff and strut, moving with as much celerity as their ideas of ceremony seem to admit. While thus occupied, the males often encounter each other, in which case desperate battles take place, ending in bloodshed, and often in the loss of many lives, the weaker falling under the repeated blows inflicted upon their head by the stronger.

I have often been much diverted, while watching two males in fierce conflict, by seeing them move alternately, backwards and forwards, as either had obtained a better hold, their wings drooping, their tails partly raised, their body-feathers ruffled, and their heads covered with blood. If, as they

thus struggle, and gasp for breath, one of them should lose his hold, his chance is over, for the other, still holding fast, hits him violently with spurs and wings, and in a few minutes brings him to the ground. The moment he is dead, the conqueror treads him under foot, but, what is strange, not with hatred, but with all the motions which he employs in caressing the female.

When the male has discovered and made up to the female (whether such a combat has previously taken place or not), if she be more than one year old, she also struts and gobbles, turns round him as he continues strutting, suddenly opens her wings, throws herself towards him, as if to put a stop to his idle delays, lays herself down, and receives his dilatory caresses. If the cock meet a young hen, he alters his mode of procedure. He struts in a different manner, less pompously and more energetically, moves with rapidity, sometimes rises from the ground, taking a short flight around the hen, as is the manner of some Pigeons, the Red-breasted Thrush, and many other birds, and on alighting, runs with all his might, at the same time rubbing his tail and wings along the ground, for the space of perhaps ten yards. He then draws near the timorous female, allays her fears by purring, and when she at length assents, caresses her.

When a male and a female have thus come together, I believe the connexion continues for that season, although the former by no means confines his attentions to one female, as I have seen a cock caress several hens, when he happened to fall in with them in the same place, for the first time. After this the hens follow their favourite cock, roosting in his immediate neighbourhood, if not on the same tree, until they begin to lay, when they separate themselves, in order to save their eggs from the male, who would break them all, for the purpose of protracting his sexual enjoyments. The females then carefully avoid him, excepting during a short period each day. After this the males become clumsy and slovenly, if one may say so, cease to fight with each other, give up gobbling or calling so frequently, and assume so careless a habit, that the hens are obliged to make all the advances themselves. They *yelp* loudly and almost continually for the cocks, run up to them, caress them, and employ various means to rekindle their expiring ardour.

Turkey-cocks when at roost sometimes strut and gobble, but I have more generally seen them spread out and raise their tail, and emit the pulmonic puff, lowering their tail and other feathers immediately after. During clear nights, or when there is moonshine, they perform this action at intervals of a few minutes, for hours together, without moving from the same spot, and indeed sometimes without rising on their legs, especially towards the end of the love-season. The males now become greatly emaciated, and cease to

gobble, their *breast-sponge* becoming flat. They then separate from the hens, and one might suppose that they had entirely deserted their neighbourhood. At such seasons I have found them lying by the side of a log, in some retired part of the dense woods and cane thickets, and often permitting one to approach within a few feet. They are then unable to fly, but run swiftly, and to a great distance. A slow turkey-hound has led me miles before I could flush the same bird. Chases of this kind I did not undertake for the purpose of killing the bird, it being then unfit for eating, and covered with ticks, but with the view of rendering myself acquainted with its habits. They thus retire to recover flesh and strength, by purging with particular species of grass, and using less exercise. As soon as their condition is improved, the cocks come together again, and recommence their rambles. Let us now return to the females.

About the middle of April, when the season is dry, the hens begin to look out for a place in which to deposit their eggs. This place requires to be as much as possible concealed from the eye of the Crow, as that bird often watches the Turkey when going to her nest, and, waiting in the neighbourhood until she has left it, removes and eats the eggs. The nest, which consists of a few withered leaves, is placed on the ground, in a hollow scooped out, by the side of a log, or in the fallen top of a dry leafy tree, under a thicket of sumach or briars, or a few feet within the edge of a cane-brake, but always in a dry place. The eggs, which are of a dull cream colour, sprinkled with red dots, sometimes amount to twenty, although the more usual number is from ten to fifteen. When depositing her eggs, the female always approaches the nest with extreme caution, scarcely ever taking the same course twice; and when about to leave them, covers them carefully with leaves, so that it is very difficult for a person who may have seen the bird to discover the nest. Indeed, few Turkeys' nests are found, unless the female has been suddenly started from them, or a cunning Lynx, Fox, or Crow has sucked the eggs and left their shells scattered about.

Turkey-hens not unfrequently prefer islands for depositing their eggs and rearing their young, probably because such places are less frequented by hunters, and because the great masses of drifted timber which usually accumulate at their heads, may protect and save them in cases of great emergency. When I have found these birds in such situations, and with young, I have always observed that a single discharge of a gun made them run immediately to the pile of drifted wood, and conceal themselves in it. I have often walked over these masses, which are frequently from ten to twenty feet in height, in search of the game which I knew to be concealed in them.

When an enemy passes within sight of a female, while laying or sitting,

she never moves, unless she knows that she has been discovered, but crouches lower until he has passed. I have frequently approached within five or six paces of a nest, of which I was previously aware, on assuming an air of carelessness, and whistling or talking to myself, the female remaining undisturbed; whereas if I went cautiously towards it, she would never suffer me to approach within twenty paces, but would run off, with her tail spread on one side, to a distance of twenty or thirty yards, when assuming a stately gait she would walk about deliberately, uttering every now and then a cluck. They seldom abandon their nest, when it has been discovered by men; but, I believe, never go near it again when a snake or other animal has sucked any of the eggs. If the eggs have been destroyed or carried off, the female soon yelps again for a male; but, in general, she rears only a single brood each season. Several hens sometimes associate together, I believe for their mutual safety, deposit their eggs in the same nest, and rear their broods together. I once found three sitting on forty-two eggs. In such cases, the common nest is always watched by one of the females, so that no Crow, Raven, or perhaps even Pole-cat, dares approach it.

A mother will not leave her eggs, when near hatching, under any circumstances, while life remains. She will even allow an enclosure to be made around her, and thus suffer imprisonment rather than abandon them. I once witnessed the hatching of a brood of Turkeys, which I watched for the purpose of securing them together with the parent. I concealed myself on the ground within a very few feet, and saw her raise herself half the length of her legs, look anxiously upon the eggs, cluck with a sound peculiar to the mother on such occasions, carefully remove each half-empty shell, and with her bill caress and dry the young birds, that already stood tottering and attempting to make their way out of the nest. Yes, I have seen this, and have left mother and young to better care than mine could have proved,—to the care of their Creator and mine. I have seen them all emerge from the shell, and, in a few moments after, tumble, roll, and push each other forward, with astonishing and inscrutable instinct.

Before leaving the nest with her young brood, the mother shakes herself in a violent manner, picks and adjusts the feathers about her belly, and assumes quite a different aspect. She alternately inclines her eyes obliquely upwards and sideways, stretching out her neck, to discover hawks or other enemies, spreads her wings a little as she walks, and softly clucks to keep her innocent offspring close to her. They move slowly along, and as the hatching generally takes place in the afternoon, they frequently return to the nest to spend the first night there. After this, they remove to some distance, keeping on the highest undulated grounds, the mother dreading rainy weather, which is extremely dangerous to the young, in this tender

state, when they are only covered by a kind of soft hairy down, of surprising delicacy. In very rainy seasons, Turkeys are scarce, for if once completely wetted, the young seldom recover. To prevent the disastrous effects of rainy weather, the mother, like a skilful physician, plucks the buds of the spice-wood bush, and gives them to her young.

In about a fortnight, the young birds, which had previously rested on the ground, leave it and fly, at night, to some very large low branch, where they place themselves under the deeply curved wings of their kind and careful parent, dividing themselves for that purpose into two nearly equal parties. After this, they leave the woods during the day, and approach the natural glades or prairies, in search of strawberries, and subsequently of dewberries, blackberries and grasshoppers, thus obtaining abundant food, and enjoying the beneficial influence of the sun's rays. They roll themselves in deserted ants' nests, to clear their growing feathers of the loose scales and prevent ticks and other vermin from attacking them, these insects being unable to bear the odour of the earth in which ants have been.

The young Turkeys now advance rapidly in growth, and in the month of August are able to secure themselves from unexpected attacks of Wolves, Foxes, Lynxes, and even Cougars, by rising quickly from the ground, by the help of their powerful legs, and reaching with ease the highest branches of the tallest trees. The young cocks shew the tuft on the breast about this time, and begin to gobble and strut, while the young hens purr and leap, in the manner which I have already described.

The old cocks have also assembled by this time, and it is probable that all the Turkeys now leave the extreme north-western districts, to remove to the Wabash, Illinois, Black river, and the neighbourhood of Lake Erie.

Of the numerous enemies of the Wild Turkey, the most formidable, excepting man, are the Lynx, the Snowy Owl, and the Virginia Owl. The Lynx sucks their eggs, and is extremely expert at seizing both young and old, which he effects in the following manner. When he has discovered a flock of Turkeys, he follows them at a distance for some time, until he ascertains the direction in which they are proceeding. He then makes a rapid circular movement, gets in advance of the flock, and lays himself down in ambush, until the birds come up, when he springs upon one of them by a single bound, and secures it. While once sitting in the woods, on the banks of the Wabash, I observed two large Turkey-cocks on a log, by the river, pluming and picking themselves. I watched their movements for awhile, when of a sudden one of them flew across the river, while I perceived the other struggling under the grasp of a Lynx. When attacked by the two large species of Owl above mentioned, they often effect their escape in a way which is somewhat remarkable. As Turkeys usually roost in flocks,

on naked branches of trees, they are easily discovered by their enemies, the Owls, which, on silent wing, approach and hover around them, for the purpose of reconnoitring. This, however, is rarely done without being discovered, and a single *cluck* from one of the Turkeys announces to the whole party the approach of the murderer. They instantly start upon their legs, and watch the motions of the Owl, which, selecting one as its victim, comes down upon it like an arrow, and would inevitably secure the Turkey, did not the latter at that moment lower its head, stoop, and spread its tail in an inverted manner over its back, by which action the aggressor is met by a smooth inclined plane, along which it glances without hurting the Turkey; immediately after which the latter drops to the ground, and thus escapes, merely with the loss of a few feathers.

The Wild Turkeys cannot be said to confine themselves to any particular kind of food, although they seem to prefer the pecan-nut and winter-grape to any other, and, where these fruits abound, are found in the greatest numbers. They eat grass and herbs of various kinds, corn, berries, and fruit of all descriptions. I have even found beetles, tadpoles, and small lizards in their crops.

Turkeys are now generally extremely shy, and the moment they observe a man, whether of the red or white race, instinctively move from him. Their usual mode of progression is what is termed walking, during which they frequently open each wing partially and successively, replacing them again by folding them over each other, as if their weight were too great. Then, as if to amuse themselves, they will run a few steps, open both wings and fan their sides, in the manner of the common fowl, and often take two or three leaps in the air and shake themselves. Whilst searching for food among the leaves or loose soil, they keep their head up, and are unremittingly on the lookout; but as the legs and feet finish the operation, they are immediately seen to pick up the food, the presence of which, I suspect, is frequently indicated to them through the sense of touch in their feet, during the act of scratching. This habit of scratching and removing the dried leaves in the woods, is pernicious to their safety, as the spots which they thus clear, being about two feet in diameter, are seen at a distance, and, if fresh, show that the birds are in the vicinity. During the summer months they resort to the paths or roads, as well as the ploughed fields, for the purpose of rolling themselves in the dust, by which means they clear their bodies of the ticks which at that season infest them, as well as free themselves of the moschettoes, which greatly annoy them, by biting their heads.

When, after a heavy fall of snow, the weather becomes frosty, so as to form a hard crust on the surface, the Turkeys remain on their roosts for three or four days, sometimes much longer, which proves their capability of

continued abstinence. When near farms, however, they leave the roosts, and go into the very stables and about the stacks of corn, to procure food. During melting snow-falls, they will travel to an extraordinary distance, and are then followed in vain, it being impossible for hunters of any description to keep up with them. They have then a dangling and straggling way of running, which, awkward as it may seem, enables them to outstrip any other animal. I have often, when on a good horse, been obliged to abandon the attempt to put them up, after following them for several hours. This habit of continued running, in rainy or very damp weather of any kind, is not peculiar to the Wild Turkey, but is common to all gallinaceous birds. In America, the different species of Grouse exhibit the same tendency.

In spring, when the males are much emaciated, in consequence of their attentions to the females, it sometimes happens that, on plain and open ground, they may be overtaken by a swift dog, in which case they squat, and allow themselves to be seized, either by the dog, or the hunter who has followed on a good horse. I have heard of such occurrences, but never had the pleasure of seeing an instance of them.

Good dogs scent the Turkeys, when in large flocks, at extraordinary distances,—I think I may venture to say half a mile. Should the dog be well trained to this sport, he sets off at full speed, and in silence, until he sees the birds, when he instantly barks, and pushing as much as possible into the centre of the flock, forces the whole to take wing in different directions. This is of great advantage to the hunter, for should the Turkeys all go one way, they would soon leave their perches and run again. But when they separate in this manner, and the weather happens to be calm and lowering, a person accustomed to this kind of sport finds the birds with ease, and shoots them at pleasure.

When Turkeys alight on a tree, it is sometimes very difficult to see them, which is owing to their standing perfectly motionless. Should you discover one, when it is down on its legs upon the branch, you may approach it with less care. But if it is standing erect, the greatest precaution is necessary, for should it discover you, it instantly flies off, frequently to such a distance that it would be vain to follow.

When a Turkey is merely winged by a shot, it falls quickly to the ground in a slanting direction. Then, instead of losing time by tumbling and rolling over, as other birds often do when wounded, it runs off at such a rate, that unless the hunter be provided with a swift dog, he may bid farewell to it. I recollect coming on one shot in this manner, more than a mile from the tree where it had been perched, my dog having traced it to this distance, through one of those thick cane-brakes that cover many portions of our rich alluvial lands near the banks of our western rivers.

Turkeys are easily killed if shot in the head, the neck, or the upper part of the breast; but if hit in the hind parts only, they often fly so far as to be lost to the hunter. During winter many of our *real* hunters shoot them by moonlight, on the roosts, where these birds will frequently stand a repetition of the reports of a rifle, although they would fly from the attack of an Owl, or even perhaps from his presence. Thus sometimes nearly a whole flock is secured by men capable of using these guns in such circumstances. They are often destroyed in great numbers when most worthless, that is, early in the fall or autumn, when many are killed in their attempt to cross the rivers, or immediately after they reach the shore.

Whilst speaking of the shooting of Turkeys, I feel no hesitation in relating the following occurrence, which happened to myself. While in search of game, one afternoon late in autumn, when the males go together, and the females are by themselves also, I heard the clucking of one of the latter, and immediately finding her perched on a fence, made towards her. Advancing slowly and cautiously, I heard the yelping notes of some gobblers, when I stopped and listened in order to ascertain the direction in which they came. I then ran to meet the birds, hid myself by the side of a large fallen tree, cocked my gun, and waited with impatience for a good opportunity. The gobblers continued yelping in answer to the female, which all this while remained on the fence. I looked over the log and saw about thirty fine cocks advancing rather cautiously towards the very spot where I lay concealed. They came so near that the light in their eyes could easily be perceived, when I fired one barrel, and killed three. The rest, instead of flying off, fell a strutting around their dead companions, and had I not looked on shooting again as murder without necessity, I might have secured at least another. So I shewed myself, and marching to the place where the dead birds were, drove away the survivors. I may also mention, that a friend of mine shot a fine hen, from his horse, with a pistol, as the poor thing was probably returning to her nest to lay.

Should you, good-natured reader, be a sportsman, and now and then have been fortunate in the exercise of your craft, the following incident, which I shall relate to you as I had it from the mouth of an honest farmer, may prove interesting. Turkeys were very abundant in his neighbourhood, and, resorting to his corn-fields, at the period when the maize had just shot up from the ground, destroyed great quantities of it. This induced him to swear vengeance against the species. He cut a long trench in a favourable situation, put a great quantity of corn in it, and having heavily loaded a famous duck gun of his, placed it so as that he could pull the trigger by means of a string, when quite concealed from the birds. The Turkeys soon discovered the corn in the trench, and quickly disposed of it, at the same time con-

tinuing their ravages in the fields. He filled the trench again, and one day seeing it quite black with the Turkeys, whistled loudly, on which all the birds raised their heads, when he pulled the trigger by the long string fastened to it. The explosion followed of course, and the Turkeys were seen scampering off in all directions, in utter discomfiture and dismay. On running to the trench, he found nine of them extended in it. The rest did not consider it expedient to visit his corn again for that season.

During spring, Turkeys are *called*, as it is termed, by drawing the air in a particular way through one of the second joint bones of a wing of that bird, which produces a sound resembling the voice of the female, on hearing which the male comes up, and is shot. In managing this, however, no fault must be committed, for Turkeys are quick in distinguishing counterfeit sounds, and when *half civilized* are very wary and cunning. I have known many to answer to this kind of call, without moving a step, and thus entirely defeat the scheme of the hunter, who dared not move from his hiding-place, lest a single glance of the gobbler's eye should frustrate all further attempts to decoy him. Many are shot when at roost, in this season, by answering with a rolling gobble to a sound in imitation of the cry of the Barred Owl.

But the most common method of procuring Wild Turkeys, is by means of *pens*. These are placed in parts of the woods where Turkeys have been frequently observed to roost, and are constructed in the following manner. Young trees of four or five inches diameter are cut down, and divided into pieces of the length of twelve or fourteen feet. Two of these are laid on the ground parallel to each other, at a distance of ten or twelve feet. Two other pieces are laid across the ends of these, at right angles to them; and in this manner successive layers are added, until the fabric is raised to the height of about four feet. It is then covered with similar pieces of wood, placed three or four inches apart, and loaded with one or two heavy logs to render the whole firm. This done, a trench about eighteen inches in depth and width is cut under one side of the cage, into which it opens slantingly and rather abruptly. It is continued on its outside to some distance, so as gradually to attain the level of the surrounding ground. Over the part of this trench within the pen, and close to the wall, some sticks are placed so as to form a kind of bridge about a foot in breadth. The trap being now finished, the owner places a quantity of Indian corn in its centre, as well as in the trench, and as he walks off drops here and there a few grains in the woods, sometimes to the distance of a mile. This is repeated at every visit to the trap, after the Turkeys have found it. Sometimes two trenches are cut, in which case the trenches enter on opposite sides of the trap, and are both strewn with corn. No sooner has a Turkey discovered the train of corn, than it communicates the circumstance to the flock by a cluck, when all of them

come up, and searching for the grains scattered about, at length come upon the trench, which they follow, squeezing themselves one after another through the passage under the bridge. In this manner the whole flock sometimes enters, but more commonly six or seven only, as they are alarmed by the least noise, even the cracking of a tree in frosty weather. Those within, having gorged themselves, raise their heads, and try to force their way through the top or sides of the pen, passing and repassing on the bridge, but never for a moment looking down, or attempting to escape through the passage by which they entered. Thus they remain until the owner of the trap arriving, closes the trench, and secures his captives. I have heard of eighteen Turkeys having been caught in this manner at a single visit to the trap. I have had many of these pens myself, but never found more than seven in them at a time. One winter I kept an account of the produce of a pen which I visited daily, and found that seventy-six had been caught in it, in about two months. When these birds are abundant, the owners of the pens sometimes become satiated with their flesh, and neglect to visit the pens for several days, in some cases for weeks. The poor captives thus perish for want of food; for, strange as it may seem, they scarcely ever regain their liberty, by descending into the trench, and retracing their steps. I have more than once, found four or five, and even ten, dead in a pen, through inattention. Where Wolves or Lynxes are numerous, they are apt to secure the prize before the owner of the trap arrives. One morning, I had the pleasure of securing in one of my pens, a fine Black Wolf, which, on seeing me, squatted, supposing me to be passing in another direction.

Wild Turkeys often approach and associate with tame ones, or fight with them, and drive them off from their food. The cocks sometimes pay their addresses to the domesticated females, and are generally received by them with great pleasure, as well as by their owners, who are well aware of the advantages resulting from such intrusions, the half-breed being much more hardy than the tame, and consequently, more easily reared.

While at Henderson, on the Ohio, I had, among many other wild birds, a fine male Turkey, which had been reared from its earliest youth under my care, it having been caught by me when probably not more than two or three days old. It became so tame that it would follow any person who called it, and was the favourite of the little village. Yet it would never roost with the tame Turkeys, but regularly betook itself at night to the roof of the house, where it remained until dawn. When two years old, it began to fly to the woods, where it remained for a considerable part of the day, to return to the enclosure as night approached. It continued this practice until the following spring, when I saw it several times fly from its roosting place to the top of a high cotton-tree, on the bank of the Ohio, from which,

after resting a little, it would sail to the opposite shore, the river being there nearly half a mile wide, and return towards night. One morning I saw it fly off, at a very early hour, to the woods, in another direction, and took no particular notice of the circumstance. Several days elapsed, but the bird did not return. I was going towards some lakes near Green river to shoot, when, having walked about five miles, I saw a fine large gobbler cross the path before me, moving leisurely along. Turkeys being then in prime condition for the table, I ordered my dog to chase it, and put it up. The animal went off with great rapidity, and as it approached the Turkey, I saw, with great surprise, that the latter paid little attention. Juno was on the point of seizing it, when she suddenly stopped, and turned her head towards me. I hastened to them, but you may easily conceive my surprise when I saw my own favorite bird, and discovered that it had recognised the dog, and would not fly from it; although the sight of a strange dog would have caused it to run off at once. A friend of mine happening to be in search of a wounded deer, took the bird on his saddle before him, and carried it home for me. The following spring it was accidentally shot, having been taken for a wild bird, and brought to me on being recognised by the red ribbon which it had around its neck. Pray, reader, by what word will you designate the recognition made by my favourite Turkey of a dog which had been long associated with it in the yard and grounds? Was it the result of instinct or of reason,—an unconsciously revived impression, or the act of an intelligent mind?

At the time when I removed to Kentucky, rather more than a fourth of a century ago, Turkeys were so abundant, that the price of one in the market was not equal to that of a common barn-fowl now. I have seen them offered for the sum of three pence each, the birds weighing from ten to twelve pounds. A first-rate Turkey, weighing from twenty-five to thirty pounds avoirdupois, was considered well sold when it brought a quarter of a dollar.

The weight of Turkey hens generally averages about nine pounds avoirdupois. I have, however, shot barren hens in strawberry season that weighed thirteen pounds, and have seen a few so fat as to burst open on falling from a tree when shot. Male Turkeys differ more in their bulk and weight. From fifteen to eighteen pounds may be a fair estimate of their ordinary weight. I saw one offered for sale in the Louisville market that weighed thirty-six pounds. Its pectoral appendage measured upwards of a foot.

Some closet naturalists suppose the hen Turkey to be destitute of the appendage on the breast, but this is not the case in the full-grown bird. The young males, as I have said, at the approach of the first winter, have

merely a kind of protuberance in the flesh at this part, while the young females of the same age have no such appearance. The second year, the males are to be distinguished by the hairy tuft, which is about four inches long, whereas in the females that are not barren, it is yet hardly apparent. The third year, the male Turkey may be said to be adult, although it certainly increases in weight and size for several years more. The females at the age of four are in full beauty, and have the pectoral appendage four or five inches long, but thinner than in the male. The barren hens do not acquire it until they are very old. The experienced hunter knows them at once in the flock, and shoots them by preference. The great number of young hens destitute of the appendage in question, has doubtless given rise to the idea that it is wanting in the female Turkey.

The long downy *double* feathers about the thighs and on the lower parts of the sides of the Wild Turkey, are often used for making tippets, by the wives of our squatters and farmers. These tippets, when properly made, are extremely beautiful as well as comfortable.

A long account of the habits of this remarkable bird has already been given in Bonaparte's American Ornithology, vol. i. As that account was in a great measure derived from notes furnished by myself, you need not be surprised, good reader, to find it often in accordance with the above.

I have ascertained that some of these valuable birds are still found in the States of New York, Massachusetts, Vermont, and Maine. In the winter of 1832–3, I purchased a few fine males in the city of Boston. This species is abundant in the wooded portions of Texas, but none have been observed either on the Rocky Mountains, or to the westward of them. They are, however, becoming less numerous in every portion of the United States, even in those parts where they were very abundant thirty years ago. My friend Dr. BACHMAN assures me, that in a state of domestication, the Wild Turkeys, though kept separate from tame individuals, lose the brilliancy of their plumage in the third generation, becoming plain brown, and having here and there white feathers intermixed. The eggs measure 2 inches 7 eighths in length, by 2 inches in breadth, and are rather pointed; their ground-colour is a uniform pale yellowish tint, and marked all over with pale rusty brown spots and dots. I found this species pretty abundant on James river in Virginia, as well as in the market of Washington city, where, in the winter of 1836–7, they sold at the low price of seventy-five cents apiece.

MELEAGRIS GALLOPAVO, Bonap. Syn., p. 122.

WILD TURKEY, *Meleagris Gallopavo*, Bonap. Amer. Orn., vol. i. p. 79.

WILD TURKEY, *Meleagris Gallopavo*, Nutt. Man., vol. i. p. 630.

WILD TURKEY, *Meleagris Gallopavo*, Aud. Orn. Biog., vol. i. p. 1, 33; vol. v. p. 599

Male, 49, 68. Female, 37, 54.

Breeds from Texas to Massachusetts and Vermont. In the interior to the Missouri, and thence northward to Michigan. Common. Resident, though removing to considerable distances in autumn, in quest of food.

Adult Male.

Bill shortish, robust, slightly arched, rather obtuse, the base covered by a bare membrane; upper mandible with the dorsal outline arched, the sides convex, the edges overlapping, the tip a little declinate; under mandible somewhat bulging towards the tip, the sides convex. Nostrils situated in the basal membrane, oblique, linear, covered above by a cartilage. Head small, flattened above, with a conical, pendulous, erectile caruncle on the forehead. Neck slender. Body robust. Feet longish and strong; tarsus covered anteriorly with numerous transverse scutella, scaly on the sides, scutellate behind; toes scutellate above, scabrous, papillar and flat beneath; hind toe elevated, half the length of the lateral toes, which are nearly equal, and much shorter than the middle toe; claws slightly arched, strong, convex above, obtuse, flat beneath. A conical, rather obtuse spur on the tarsus, about two-thirds down.

Conical papillæ of the forehead rugose, sparsely covered with bristles. Head bare, and corrugated, the skin irregularly raised, and covered with a few scattered bristles. External ear margined with short and slender thin feathers. Neck also bare, corrugated, beset anteriorly and below with a series of oblong, irregular, cavernous caruncles, interspersed with small bristly feathers. Plumage in general compact, glossy, with metallic reflections. Feathers double, as in other gallinaceous birds, generally oblong and truncated. A pendulous tuft of long bristles from the upper part of the breast. Wings shortish, convex, rounded, the fourth and fifth quills longest. Tail rather long, ample, rounded, consisting of eighteen broad rounded feathers; capable of being erected and expanded in a permanent manner, when the bird is excited, and reaching nearly to the ground, when the bird stands erect.

Bill yellowish-brown. Frontal caruncle blue and red. Rugose and carunculated skin of the head and neck of various tints of blue and purple, the pendulous anterior caruncles of the latter, or the *wattles*, bright red, changing to blue. Iris hazel. Legs and toes bright purplish-red; claws brown. Upper part of the back and wings brownish yellow, with metallic lustre, changing to deep purple, the truncated tips of the feathers broadly margined with velvet-black. On the middle and lower back, the black terminal bands of the feathers almost conceal the bronze colour. The large quill-coverts are of the same colour as the back, but more bronzed, with purple reflections. Quills brownish-black, the primaries banded with

greyish-white, the secondaries with brownish-white, gradually becoming deeper towards the proximal feathers, which are similar to the coverts. The lower part of the back and the tail-coverts are deep chestnut, banded with green and black. The tail-feathers are of the same colour, undulatingly barred and minutely sprinkled with black, and having a broad blackish bar towards the tip, which is pale brown and minutely mottled. The under parts are duller. Breast of the same colours as the back, the terminal black band not so broad; sides dark coloured; abdomen and thighs brownish-grey; under tail-coverts blackish, glossed with bronze, and at the tip bright reddish-brown.

Length 4 feet 1 inch, extent of wings 5 feet 8 inches; beak 1½ inches along the ridge, 2 along the gap; tarsus 7¼; middle toe 5, hind toe 2; pectoral appendage 1 foot. Such were the dimensions of the individual represented in the plate, which, I need not say, was a fine specimen.

The female is considerably inferior in size, with the wattles much smaller, the tuft on the breast comparatively small, and only in old birds; the colour of the plumage duller, there being but little of the refulgent hues of the male; the lower parts brownish-black. The young, before being fledged, are pale brownish-yellow above, pale yellowish-grey beneath, the top of the head brighter, marked in the middle with a longitudinal pale brown band; the back and wings spotted with brownish-black, excepting the smaller wing-coverts, which are uniformly dull brown.

FAMILY XXXI.—PERDICINÆ. PARTRIDGES.

Bill very short, stout, broader than high at the base, with the upper mandible convex, thin-edged, obtuse, the lower with the dorsal line convex, the tip rounded. Head small, oblong; neck of moderate length, or rather short; body very bulky. Feet rather of moderate length, stout; tarsus bare, anteriorly scutellate; hind toe rather small, third long, lateral nearly equal, all scutellate, anterior webbed at the base. Claws moderate, arched, compressed, obtuse. Plumage full and strong; feathers with the plumule much developed. Wings rather short, convex, rounded. Tail generally short and rounded, of more than twelve feathers. Tongue triangular, pointed; œsophagus with a very large crop; stomach a very strong muscular gizzard, with the lateral muscles highly developed, the epithelium dense, with two concave grinding surfaces; intestine long, and of moderate width; cœca very large, oblong, internally with reticulate ridges. Trachea without inferior laryngeal muscles. Nest on the ground, rudely constructed. Eggs numerous. Young covered with stiffish down.

Genus I.—ORTHYX, *Steph.* AMERICAN PARTRIDGE.

Bill very short, robust, rather obtuse; upper mandible with the outline decurved from the base, the ridge narrow at the base, on account of the breadth of the nasal membrane, somewhat distinct in its whole length, with the sides convex, the gap-line arched, the edges thin, without notch, the tip decurved, thin-edged, obtuse; lower mandible with the angle short and rounded, the dorsal line slightly convex, the sides rounded, the edges involute, the tip rounded. Nostrils basal, linear, operculate, nearly concealed. Head of ordinary size, ovato-oblong; neck rather short; body full. Feet of moderate length; tarsus shorter than the middle toe, with two anterior series of large scales; first toe small and elevated; third very long, second shorter than third, scutellate, connected at the base by webs of a considerable extent. Claws rather stout, arched, compressed, rather acute. Plumage dense, rather

Common American Partridge.

Drawn from Nature by J.J. Audubon, F.R.S. F.L.S.

1 Male. 2 Female. 3 Young

Lith.d Printed & Col.d by J.T. Bowen. Phila.a

compact; wings short, concave, rounded. Tail short, rounded, of twelve feathers. A bare space behind the eyes. Tongue triangular, fleshy; œsophagus with an ovate oblique crop on the fore part of the neck; stomach a very large and strong gizzard, broader than long, placed obliquely, with concave grinding surfaces; intestine long and wide; cœca large.

THE COMMON AMERICAN PARTRIDGE.

ORTIX VIRGINIANA, *Linn.*

PLATE CCLXXXIX.—MALE, FEMALE, AND YOUNG.

The common name given to this bird in the Eastern and Middle Districts of our Union is that of *Quail*, but in the Western and Southern States, the more appropriate appellation of *Partridge* is bestowed upon it. It is abundantly met with in all parts of the United States, but more especially towards the interior. In the States of Ohio and Kentucky, where they are very abundant, they are to be seen in the markets, both dead and alive, in large quantities.

This species performs occasional migrations from the north-west to the south-east, usually in the beginning of October, and somewhat in the manner of the Wild Turkey. For a few weeks at this season, the north-western shores of the Ohio are covered with flocks of Partridges. They ramble through the woods along the margin of the stream, and generally fly across towards evening. Like the Turkeys, many of the weaker Partridges often fall into the water, while thus attempting to cross, and generally perish; for although they swim surprisingly, they have not muscular power sufficient to keep up a protracted struggle, although when they have fallen within a few yards of the shore, they easily escape being drowned. As soon as the Partridges have crossed the principal streams in their way, they disperse in flocks over the country, and return to their ordinary mode of life.

The flight of these birds is generally performed at a short distance from the ground. It is rapid, and is continued by numerous quick flaps of the wings for a certain distance, after which the bird sails until about to alight, when again it flaps its wings to break its descent. When chased by dogs, or started by any other enemy, they fly to the middle branches of trees of

ordinary size, where they remain until danger is over. They walk with ease on the branches. If they perceive that they are observed, they raise the feathers of their head, emit a low note, and fly off either to some higher branch of the same tree, or to another tree at a distance. When these birds rise on wing of their own accord, the whole flock takes the same course; but when put up (in the sportsman's phrase), they disperse, after alighting call to each other, and soon after unite, each running or flying towards the well-known cry of the patriarch of the covey. During deep and continued snows, they often remain on the branches of trees for hours at a time.

The usual cry of this species is a clear whistle, composed of three notes; the first and last nearly equal in length, the latter less loud than the first, but more so than the intermediate one. When an enemy is perceived they immediately utter a lisping note, frequently repeated, and run off with their tail spread, their crest erected, and their wings drooping, towards the shelter of some thicket or the top of a fallen tree. At other times, when one of the flock has accidentally strayed to a distance from its companions, it utters two notes louder than any of those mentioned above, the first shorter and lower than the second, when an answer is immediately returned by one of the pack. This species has moreover a love-call, which is louder and clearer than its other notes, and can be heard at a distance of several hundred yards. It consists of three distinct notes, the two last being lou dest, and is peculiar to the male bird. A fancied similarity to the words *Bob White* renders this call familiar to the sportsman and farmer; but these notes are always preceded by another, easily heard at a distance of thirty or forty yards. The three together resemble the words *Ah Bob White*. The first note is a kind of aspiration, and the last is very loud and clear. This whistle is seldom heard after the breeding season, during which an imitation of the peculiar note of the female will make the male fly towards the sportsman, who may then easily shoot it.

In the Middle Districts, the love-call of the male is heard about the middle of April, and in Louisiana much earlier. The male is seen per ched on a fence-stake, or on the low branch of a tree, standing nearly in the same position for hours together, and calling *Ah Bob White* at every interval of a few minutes. Should he hear the note of a female, he sails directly towards the spot whence it proceeded. Several males may be heard from different parts of a field challenging each other, and should they meet on the ground, they fight with great courage and obstinacy, until the conqueror drives off his antagonist to another field.

The female prepares a nest composed of grasses, arranged in a circular form, leaving an entrance not unlike that of a common oven. It is placed at the foot of a tuft of rank grass or some close stalks of corn, an l is partly

sunk in the ground. The eggs are from ten to eighteen, rather sharp at the smaller end, and of a pure white. The male at times assists in hatching them. This species raises only one brood in the year, unless the eggs or the young when yet small have been destroyed. When this happens, the female immediately prepares another nest; and should it also be ravaged, sometimes even a third. The young run about the moment after they make their appearance, and follow their parents until spring, when, having acquired their full beauty, they pair and breed.

The Partridge rests at night on the ground, either amongst the grass or under a bent log. The individuals which compose the flock form a ring, and moving backwards, approach each other until their bodies are nearly in contact. This arrangement enables the whole covey to take wing when suddenly alarmed, each flying off in a direct course, so as not to interfere with the rest.

These birds are easily caught in snares, common dead-falls, traps and pens, like those for the Wild Turkey, but proportionate to the size of the bird. Many are shot, but the principal havoc is effected by means of nets, especially in the Western and Southern States. The method employed is as follows:

A number of persons on horseback, provided with a net, set out in search of Partridges, riding along the fences or briar-thickets, which the birds are known to frequent. One or two of the party whistle in imitation of the second call-note above described, and as Partridges are plentiful, the call is soon answered by a covey, when the sportsmen immediately proceed to ascertain their position and number, seldom considering it worth while to set the net when there are only a few birds. They approach in a careless manner, talking and laughing as if merely passing by. When the birds are discovered, one of the party gallops off in a circuitous manner, gets in advance of the rest by a hundred yards or more, according to the situation of the birds, and their disposition to run, while the rest of the sportsmen move about on their horses, talking to each other, but at the same time watching every motion of the Partridges. The person in advance being provided with the net, dismounts and at once falls to placing it, so that his companions can easily drive the Partridges into it. No sooner is the machine ready, than the net-bearer remounts and rejoins the party. The sportsmen separate to a short distance, and follow the Partridges, talking and whistling, clapping their hands, or knocking upon the fence-rails. The birds move with great gentleness, following each other, and are kept in the right direction by the sportsmen. The leading bird approaches and enters the mouth of the net, the others follow in succession, when the net-bearer leaps from his horse, runs up and secures the entrance, and soon despatches

the birds. In this manner, fifteen or twenty Partridges are caught at one driving, and sometimes many hundreds in the course of a day. Most netters give liberty to a pair out of each flock, that the breed may be continued.

The success of driving depends much on the state of the weather. Drizzly rain or melting snow are the best, for in such weather Partridges and gallinaceous birds in general will run to a great distance rather than fly; whereas if the weather be dry and clear they generally take to wing the moment they discover an intruder, or squat so that they cannot be driven without very particular care. Again, when the flocks are found in the woods, they run off so briskly and so far, that it is difficult for the net-bearer to place his machine in time.

The net is cylindrical, thirty or forty feet in length, by about two in diameter, excepting at the mouth or entrance, where it is rather larger, and at the extremity, where it assumes the form of a bag. It is kept open by means of small wooden hoops, at a distance of two or three feet from each other. The mouth is furnished with a semi-circular hoop, sharpened at both ends, which are driven into the ground, thus affording an easy entrance to the birds. Two pieces of netting called wings, of the same length as the cylindrical one, are placed one on each side of the mouth, so as to form an obtuse angle with each other, and are supported by sticks thrust into the ground, the wings having the appearance of two low fences leading to a gate. The whole is made of light and strong materials.

The Virginian Partridge is easily kept in cages or coops, and soon becomes very fat. Attempts at rearing them from the eggs have generally failed, probably for want of proper care, and a deficiency of insects, on which the young feed. The ordinary food of this species consists of seeds of various kinds, and such berries as grow near the surface of the ground, along with which they pick up a quantity of sand or gravel. Towards autumn, when the young have nearly attained their full size, their flesh becomes fat, juicy, and tender, and being moreover white and extremely agreeable to the palate, is in much request. Twenty years ago, they were commonly sold at twelve cents the dozen. They suffer greatly in the Middle Districts during severe winters, and are killed in immense numbers.

This bird has been introduced into various parts of Europe, but is not much liked there, being of such pugnacious habits as to drive off the common Grey Partridge, which is considered a better bird for the table.

This species occurs far up the Missouri; and is extremely abundant in Texas, where it principally keeps on the prairies. In the Floridas I found it all over the pine barrens; but none were seen on any of the Keys. In Texas, the Floridas, and as far eastward as the neighbourhood of Charleston,

in South Carolina, it breeds twice in the year, first in May, and again in September. The following is an account of some attempts to domesticate this bird made by my friend Dr. BACHMAN :—

"Several years ago I made an attempt to domesticate the Virginian Partridge, and, contrary to the usually received opinion, I was quite successful. The eggs had been obtained from the fields, and were hatched under a Bantam hen. By confining the young with their foster-mother for a few days, they soon learned to follow her like young chickens. They were fed for a couple of weeks on curds, but soon began to eat cracked Indian corn, and several kinds of millet. They were permitted to stray at large in my garden ; but fearing that they might be induced to fly over the enclosure and stray away, I amputated a joint of the wing. There was no difficulty in preserving them during the summer and winter, and they became so very gentle that they were in the habit of following me through the house, and often seated themselves for hours on the table at which I was writing, occasionally playfully picking at my hand, and running off with my pen. At night they nestled in a coop placed for that purpose in the garden. The cats in the neighbourhood, unfortunately for my experiment, took a fancy to my birds, and carried off several, so that at the breeding season my stock was reduced to two females, with a greater number of males. The latter now commenced their not unmusical notes of 'bob white,' at first low, but increasing in loudness and energy till they were heard through the whole neighbourhood. These notes were precisely similar to those of the wild birds, affording a proof that they were natural and not acquired by an association with those of their own species, as these birds had no opportunity of hearing any other notes than those of the poultry on the premises. As the spring advanced, the males became very pugnacious, and continual contests took place among themselves, as well as with the Pigeons, and the young poultry that occasionally intruded on their domicile. In May they commenced laying, both in one nest, in a box placed for the purpose. The eggs were all impregnated, and on being placed under a hen were hatched. A variety of engagements interrupted my attending to them afterwards, and by some accident I was prevented from pursuing my experiment farther. My friend Dr. WILSON, however, was still more successful than I had been. He placed in his aviary several birds of this species that had been caught in a trap in an adult state. These, in the following spring, sought out secluded nooks overhung by branches of shrubbery, where they built their nests, and laid their eggs. The males and females both sat upon them by turns, and in some instances all the eggs in the nest were hatched. They were much attached to their young, sheltered them under their wings, and endeavoured to protect them from the persecution of other birds confined in the aviary.

Owing, however, to the small space in which they were confined, none of the young were finally raised. These experiments, however, as far as they went, convinced us that this species may be easily domesticated, and that if they are preserved from being molested by cats and other enemies, they may be kept in enclosures and multiplied to a considerable extent."

The eggs measure an inch and a quarter in length, seven and a half eighths in breadth, and taper to a small rounded point.

QUAIL OR PARTRIDGE, *Perdix virginiana*, Wils. Amer. Orn., vol. vi. p. 21.
PERDIX VIRGINIANA, Bonap. Syn., p. 124.
AMERICAN PARTRIDGE OR QUAIL, Nutt. Man., vol. i. p. 647.
VIRGINIAN PARTRIDGE, *Perdix virginiana*, Aud. Orn. Biog., vol. i. p. 388; vol. v. p. 564.

Male, 10, 15. Female, 9½, 14.

Breeds abundantly from Texas to Massachusetts; in the interior, high on the Missouri, and in all intermediate districts.

Adult Male.

Bill short, robust, rather obtuse, the base covered by feathers; upper mandible with the dorsal outline curved, the sides convex, the edges overlapping, the tip declinate; under mandible nearly straight in its dorsal outline, arched on the edges, the sides convex. Nostrils concealed among the feathers. Head and neck of ordinary size. Body short and bulky, Feet of ordinary length; tarsus anteriorly scutellate, a little compressed, spurless; toes scutellate above, pectinate on the sides; claws arched, obtuse.

Plumage compact, glossy. Feathers of the upper part of the head erectile into a tuft. Wings short, broad, much curved and rounded, the fourth quill longest. Tail short, rounded, of twelve rounded feathers.

Bill dark brown. Iris hazel. Feet greyish-blue. The forehead, a broad line over each eye, and the throat and fore-neck, white. Lore, auricular coverts, and a broad irregular semilunar band on the fore-neck, more or less black. Upper part of the head, hind and lower part of the neck all round, reddish-brown. Upper back and wing-coverts bright brownish-red; the lower part of the back light red, tinged with yellow. Primaries dusky, externally margined with blue; secondaries irregularly bared with light red. Tail greyish-blue, excepting the middle feathers, which are dull greyish-yellow, sprinkled with black. Sides of the neck spotted with white. Under parts white, streaked with brownish-red, transversely and undulatingly barred with black. Sides and under tail-coverts reddish.

Length 10 inches, extent of wings 15; bill along the back ½, along the gap $\frac{7}{12}$; tarsus ¼, middle toe nearly the same.

Young Male.

Similar to the adult male in the general distribution of the colours; but the white of the head and throat bright reddish-yellow, the black of the fore-neck and sides of the head deep brown, the under parts less pure and more dusky, and the tail of a duller grey.

Adult Female.

The female resembles the young male, but is more decidedly coloured, the bill darker, the head of a more uniform and richer reddish-yellow, the sides of the neck spotted with yellow and black.

Length 9½ inches, extent of wings 14.

Young Female.

The young females are somewhat smaller and lighter in their tints than the young males.

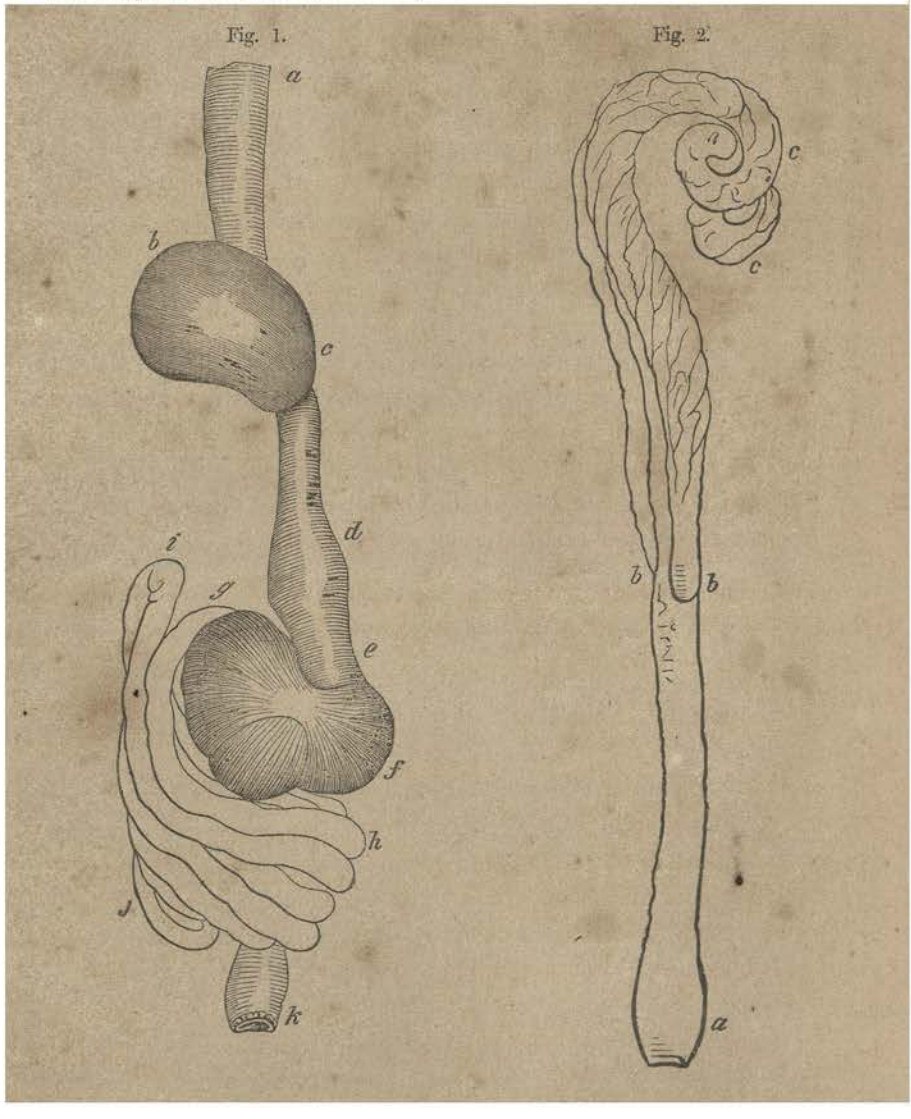
Very Young Birds.

Bill brownish-yellow. Iris light hazel. The general colour of the upper parts light yellowish-brown, patched with grey; sides of the head dusky.

In a male preserved in spirits, the roof of the mouth is covered posteriorly with large flattened papillæ, and has a very prominent median ridge anteriorly; its width is 5½ twelfths. The tongue is triangular, fleshy, emarginate and papillate at the base, with one of the papillæ on each side very large. The œsophagus, Fig. 1, *a e*, which has at first a width of 4 twelfths, forms an ovate oblique crop, *b c*, 1 inch 2 twelfths in its greatest length, and 9 twelfths in breadth, which, together with the œsophagus, lies on the right side of the neck; it then passes obliquely on the left side, forms a proventriculus, *d e*, of an oblong form, 5 twelfths in width, with very large cylindrical glands arranged so as to form a belt ½ inch in breadth. The stomach, *e f g*, is a very large and strong gizzard, broader than long, and placed obliquely, its length 1 inch, its breadth 1¼ inches; the left muscle 3½ twelfths, the right 5 twelfths thick, the lower muscle very thin, but prominent; the tendons very large; the epithelium very dense and horny, longitudinally rugous; the grinding surfaces concave. The proventricular glands are 3 twelfths in length, the upper inclining downwards, the lower perpendicular. The liver is rather small, the right lobe 1 inch 1 twelfth in length, the left divided into two lobes, of which the anterior is 10 twelfths, the posterior 1 inch in length. The intestine, *g h k*, is of great length, and width, the former 26 inches, its average diameter being 2¾ twelfths. The duodenum, *g h i*, curves round the lower edge of the stomach, returns at the distance of 4½ inches, ascends to the liver, which has two ducts, but is destitute of gall-bladder, then forms seven curves, and terminates in the rectum above the stomach. The cœca, Fig. 2, *b c*, come off at the distance of 2¼ inches, and are 4½ inches in length; their width at the commencement 3 twelfths their greatest width 4½ twelfths, their extremity obtuse and con-

voluted. They are marked with oblique-branched ridges on the inner surface. The intestine at this part is 2 twelfths in width; the rectum, *a b*, 2½ twelfths, without cloacal enlargement.

The trachea is 3 inches 2 twelfths long, flattened; its breadth at the top 2 twelfths, at the lower part 1 twelfth; its rings cartilaginous, about 85; the lower very large, with a membrane intervening between its two portions. The lateral muscles are strong, but there are no inferior laryngeal muscles. The rings of the bronchi are only 10.



Californian Partridge.

Drawn from Nature by J.J Audubon, FRSFLS.

1. Male. 2. Female.

Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

CALIFORNIAN PARTRIDGE.

ORTIX CALIFORNICA, *Lath.*

PLATE CCXC.—MALE AND FEMALE

This beautiful species was discovered in the course of the voyage of LA PEROUSE, and figured in the atlas accompanying the account of that unfortunate expedition, but without any other notice respecting its habits or distribution, than an intimation of its having been found abundant in the plains and thickets of California, where it formed large flocks. Mr. TOWNSEND has lately sent me a beautiful specimen of the male, which he procured on the 6th of March, 1837, near Santa Barbara in California. I have to regret, however, that he has not furnished me with any account of its habits. Mr. NUTTALL, in speaking to me of this bird, informed me that it is very gentle or confident, so as to be in a great measure regardless of the approach of man, that its manners resemble those of our Common or Virginian Partridge, and that the males in spring are seen perched on low bushes, where they utter their love-notes in the same emphatic manner as the species just mentioned.

PERDIX CALIFORNICA, Lath. Ind. Ornith. Supplt., p. 62.
CALIFORNIAN PARTRIDGE, *Perdix Californica*, Aud. Orn. Biog., vol. v. p. 152.

Male, 9¼, wing, 4 7/12. Female, 9, wing, 4 7/12.
Upper California. Abundant. Resident.
Adult Male.

Bill very short, stout; its dorsal outline decurved from the base, the ridge narrow, the sides sloping and slightly convex, the edges sharp and overlapping, the tip rather obtuse but thin-edged; nostrils basal, oblong, operculate in the fore part of the wide nasal groove, which is partially covered with feathers; gap-line a little arched; lower mandible with the angle short and rounded, the dorsal line ascending and slightly convex, the ridge broad, the sides convex, the edges sharp, the tip obtuse.

Head of moderate size, ovate; neck short; body full. Feet of moderate length, stout; tibia covered to the joint; tarsus rather short, a little compressed, sharp-edged behind, covered all round with angular scales, of which the anterior are very large; toes four, the first small and placed higher than the rest; the anterior long, rather slender, the fourth considerably longer

than the second, the third much the longest, all scutellate above. Claws long, rather slender, arched, rather obtuse.

Plumage full, firm, blended. Feathers on the fore part of the head linear, recurved, stiff; those of the neck oblong, of the throat blended, of the other parts generally broadly ovate. On the top of the head is an elegant crest of elongated feathers, six in number, at first decurved, towards the end recurved, narrow at the base, broad towards the end, with the webs deflected, the longest an inch and two-twelfths. Wings short, convex, much rounded, the fourth and fifth quills longest, the first eight-twelfths of an inch shorter. Tail rather short, much rounded, of twelve feathers.

Bill bluish-black. Iris dark hazel. Feet dull yellowish-grey, claws dusky. The stiff feathers on the forehead are dull yellow; the crest black, the upper part of the head dark-brown, margined with a band of white; the throat deep black, margined by a semilunar band of white, curving up to the eyes, behind which is a bare space. The hind part and sides of the neck are light ash-grey, anteriorly approaching to white, beautifully marked with black, each feather having a marginal band and central line of that colour; the lower half of the neck anteriorly and a part of the breast, are greyish-blue, the rest of the breast reddish-white, its central part chestnut-red, with semilunar black bands; the sides reddish-brown, each feather with a central white streak; the rest of the lower parts light yellowish-brown, faintly barred with dusky, the lower tail-coverts with a central dark brown streak. The back and wings are greyish-brown, the outer secondaries margined externally, the inner internally, with light red; the tail brownish-grey.

Length to end of tail 9½ inches; bill along the ridge $\frac{6\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{6}{12}$; wing from flexure $4\frac{7}{12}$; tail $3\frac{1}{2}$; tarsus $1\frac{1}{4}$; hind toe $\frac{9}{12}$, its claw $\frac{3}{12}$; middle toe $1\frac{2}{12}$, its claw $\frac{6\frac{1}{2}}{12}$.

Adult Female.

The female, which is a little smaller, has also a shorter tuft of elongated feathers on the head, and is much less brightly coloured; the bill being brown, the feet yellowish-brown; the upper part of the head dull reddish-brown, the throat and cheeks brownish-white, streaked with dusky; the hind part and sides of the neck greyish-brown, each feather with a median and marginal band of black, as in the male, but fainter; the lower part of the neck and part of the breast brownish-grey, the rest of the upper and lower parts as in the male, but much duller.

Length to end of tail 9 inches; bill along the ridge $\frac{6}{12}$; wing from flexure $4\frac{7}{12}$; tail $3\frac{9}{12}$; tarsus $1\frac{1}{12}$; hind toe $\frac{8\frac{1}{2}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; middle toe $1\frac{2}{12}$, its claw $\frac{5}{12}$.

Plumed Partridge.

1. Male. 2. Female

Drawn from Nature by J.J.Audubon F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen. Phila.ª

PLUMED PARTRIDGE.

ORTIX PLUMIFERA, *Gould.*

PLATE CCXCI.—MALE AND FEMALE.

Of this beautiful bird little, I believe, is known. The following notice by Mr. TOWNSEND shows that it is entitled to a place in our Fauna :—"This bird inhabits the dense woods along the tributary streams of the Columbia river, and is said to extend south into California. It is at all times a very scarce species, going in coveys of from six to ten, and is rarely seen away from its favourite places of resort. In all my rambles through the Oregon country I was never so fortunate as to meet with this pretty bird, the three specimens which I have received having been procured for me by others."

One of these specimens has been forwarded to me by Mr. TOWNSEND, and as it proved a female, I made a drawing of the male from a superb specimen now in the Museum of the Zoological Society of London.

PLUMED PARTRIDGE, *Perdix plumifera*, Aud. Orn. Biog., vol. v. p. 226.

Male, 11, wing 5¾. Female, 10, wing 5½.

Columbia river and upper California. Rather rare. Migratory.

Adult Male.

Bill very short, stout, higher than broad, its dorsal outline decurved from the base, the ridge narrow, the sides sloping and convex, the edges sharp and overlapping, the tip rather obtuse but thin-edged ; nostrils basal, oblong, operculate in the fore part of the wide nasal groove, which is partially covered with feathers ; gap line a little arched ; lower mandible with the angle short and rounded, the dorsal line ascending and slightly convex, the ridge broad, the sides convex, the edges sharp, the tip obtuse.

Head of moderate size ; ovate ; neck short ; body full. Feet of moderate length, stout ; tibia covered to the joint ; tarsus rather short, a little compressed, edged behind, covered all round with angular scales, of which the anterior are very large ; toes four, the first small, and placed higher than the rest ; the anterior long, rather slender, the fourth considerably longer than the second, the third much the longest ; all scutellate above. Claws long, rather slender, compressed, arched, rather acute.

Plumage full, firm, blended. Feathers generally oblong, on the sides very

large. On the top of the head are two linear-lanceolate, decurved feathers, having their webs deflected, and three inches and three-quarters long, in the midst of a tuft of smaller feathers. Wings short, convex, much rounded, the fourth quill longest, the third and fifth scarcely shorter, the second four-twelfths shorter than the third, and five-twelfths longer than the second. Tail rather short, much rounded, of twelve feathers.

Bill black, "iris red," feet dull yellow, claws brown. The upper part of the head, the hind neck, the fore part of the back, the lower part of the fore neck, and part of the breast, greyish-blue; the feathers round the base of the bill white; the elongated feathers on the head black, the throat bright chestnut, margined on each side by a black line, succeeded by a band of white an inch and a half in length, passing downwards from the eye. The back and rump are reddish-brown, the quills and tail-feathers wood-brown, margined with reddish-brown, the inner secondaries broadly margined internally with white. The middle of the breast bright chestnut, as are the upper hypochondrial feathers, which are margined on their inner web toward the end with a narrow black, and a broad white band, the intervening space on the sides broadly banded with white, black, and brownish-red.

Length to end of tail 11 inches; bill along the ridge $\frac{7}{12}$, along the edge of lower mandible $\frac{7}{12}$; wing from flexure $5\frac{3}{4}$; tail $3\frac{1}{2}$; tarsus $1\frac{4}{12}$; hind toe $\frac{4}{12}$, its claw $\frac{3}{12}$; middle toe $\frac{9}{12}$, its claw $\frac{6}{12}$.

Adult Female.

The female, which is somewhat less, is similar to the male, but less brightly coloured. The elongated feathers on the head are much shorter, being about two inches long. The middle and hind part of the back, the wings, and the tail, are very minutely and rather faintly undulated with dusky. Otherwise the difference in the colouring is not very remarkable.

Length to end of tail 10 inches; bill along the ridge $\frac{7}{12}$; wing from flexure $5\frac{1}{2}$; tail $3\frac{1}{2}$; tarsus $1\frac{4}{12}$; hind toe $\frac{4}{12}$, its claw $\frac{3}{12}$; middle toe $\frac{9}{12}$, its claw $\frac{6}{12}$.

Welcome Partridge.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Young.

Lith.d Printed & Col.d by J. T. Bowen, Phila.d

WELCOME PARTRIDGE.

ORTIX NEOXENUS, *Vigors.*

PLATE CCXCII.—YOUNG.

Nothing is known of this species further than that it was procured in the course of Captain BEECHEY'S voyage, on the north-west coast of America. My drawing was taken from a specimen kindly lent to me by the Council of the Zoological Society of London.

WELCOME QUAIL, *Ortyx neoxenus*, Vig. Gard. and Menag. of Zool. Soc., vol. ii. p. 311.
WELCOME PARTRIDGE, *Perdix neoxenus*, Aud, Orn. Biog., vol. v. p. 228.

Length 7½, wing 4⅜.
California.
Young.

The form and proportions being nearly the same as those of the Plumed and Californian Partridges, it is unnecessary to describe them; the bill, however, is proportionally thicker, and has its tip less decurved. Mr. BENNET'S description is as follows:—

"In size the present bird is smaller than the Californian Quail. Its crest is short, straight, directed backwards, and composed of about half a dozen elongated feathers, of the same pale brown as the forehead in front of them. Round the eyes the brown becomes much paler, but assumes a rufous tinge as it passes backwards, on either side of the head, in two stripes, extending from above and below the eye. Between these stripes, and on the lower and back part of the neck, a number of pale brown and somewhat pointed feathers alternate with broad black ones. The back is of a grizzled brown, with much darker patches; and this colouring extends to the tail, which is crossed by about eight wavy irregular lines of very pale brown. The wing-coverts are dark brown, with light margins; and the quill-feathers dusky-brown, some of them slightly marked on the edges with paler spots. The under surface of the body is dark brown, copiously marked with rounded spots, which are nearly of a pure white; they commence small on the neck, where they are somewhat dingy, and increase in size as they proceed backwards. The bill is black; the iris pale brown; and the claws horn-coloured."

Length to end of tail 7½ inches; bill along the ridge $\frac{5}{12}$; wing from flexure $4\frac{3}{8}$; tail $2\frac{3}{8}$; tarsus $1\frac{2}{12}$; hind toe $\frac{3}{12}$, its claw $\frac{2}{12}$; middle toe $1\frac{1}{12}$, its claw $\frac{4}{12}$. The second quill longest; the tail of twelve feathers.

FAMILY XXXII.—TETRAONINÆ. GROUSE.

Bill short, stout, with the upper mandible convex, thin edged, without notches, its tip thin edged, obtuse, the lower mandible with the dorsal line slightly convex, the edges thin, the tip rounded. Head small, oblong; neck of moderate length; body very bulky. Feet short, stout; tarsus partially or entirely feathered; hind toe small, third long, lateral nearly equal, all scutellate, anterior webbed at the base. Claws moderate or long, arched, rather depressed, blunt. Plumage full and soft; feathers with the plumule much developed. Wings rather short, convex, rounded. Tail various, of more than twelve feathers. A bare coloured space on each side of the neck, usually concealed by the feathers; but in some species capable of being distended so as to protrude. A bare red membrane over the eye, more developed in the males. Tongue triangular, pointed; œsophagus with an enormous crop; stomach a very powerful gizzard, having the lateral muscles extremely developed, the epithelium dense, with two concave grinding surfaces; the intestine long and wide; cœca excessively elongated, cylindrical, with internal longitudinal ridges. Nest on the ground, rudely constructed. Eggs numerous, spotted. Young covered with stiffish down.

Genus I.—TETRAO, *Linn.* GROUSE.

Bill short, robust; upper mandible with the dorsal line decurved, the ridge convex, narrowed at the base, the sides convex, the edges sharp and overlapping, the tip thin-edged and rounded; lower mandible with the angle long and wide, the dorsal line convex, the sides rounded, the edges inflected, the tip rounded. Nostrils roundish, in the fore part of the large and feathered nasal depression. Head small, ovate; neck of ordinary length; body large and full. Feet stout, of moderate length; tarsus short, feathered, at the lower part sometimes bare and scutellate; toes bare, scutellate, with a marginal fringe of pectinate scales. Claws rather large, arched, compressed, obtuse. Plumage full, soft, rather blended. Wings rather short, convex, much rounded, the third and fourth quills longest. Tail rounded, of more than twelve feathers.

Ruffed Grouse

1 2 Males. 3 Females.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Lith.ᵈ Printed & Col.ᵈ by J. T. Bowen, Philad.ᵃ

THE RUFFED GROUSE.

TETRAO UMBELLUS, *Linn.*

PLATE CCXCIII.—MALES AND FEMALE.

You are now presented, kind reader, with a species of Grouse, which, in my humble opinion, far surpasses as an article of food every other land-bird which we have in the United States, except the Wild Turkey, when in good condition. You must not be surprised that I thus express an opinion contradictory to that of our Eastern epicures, who greatly prefer the flesh of the Pinnated Grouse to that of the present species, for I have had abundant opportunity of knowing both. Perhaps, after all, the preference may depend upon a peculiarity in my own taste; or I may give the superiority to the Ruffed Grouse, because it is as rarely met with in the Southern States, where I have chiefly resided, as the Pinnated Grouse is in the Middle Districts; and were the *bon-vivants* of our eastern cities to be occasionally satiated with the latter birds, as I have been, they might possibly think their flesh as dry and flavourless as I do.

The names of *Pheasant* and *Partridge* have been given to the present species by our forefathers, in the different districts where it is found. To the west of the Alleghanies, and on those mountains, the first name is generally used. The same appellation is employed in the Middle Districts, to the east of the mountains, and until you enter the State of Connecticut; after which that of *Partridge* prevails.

The Ruffed Grouse, although a constant resident in the districts which it frequents, performs partial sorties at the approach of autumn. These are not equal in extent to the peregrinations of the Wild Turkey, our little Partridge, or the Pinnated Grouse, but are sufficiently so to become observable during the seasons when certain portions of the mountainous districts which they inhabit become less abundantly supplied with food than others. These partial movings might not be noticed, were not the birds obliged to fly across rivers of great breadth, as whilst in the mountain lands their groups are as numerous as those which attempt these migrations; but on the north-west banks of the Ohio and Susquehanna rivers, no one who pays the least attention to the manners and habits of our birds, can fail to observe them. The Grouse approach the banks of the Ohio in parties of eight or ten, now and then of twelve or fifteen, and, on arriving there,

linger in the woods close by for a week or a fortnight, as if fearful of encountering the danger to be incurred in crossing the stream. This usually happens in the beginning of October, when these birds are in the very best order for the table, and at this period great numbers of them are killed. If started from the ground, with or without the assistance of a dog, they immediately alight on the nearest trees, and are easily shot. At length, however, they resolve upon crossing the river; and this they accomplish with so much ease, that I never saw any of them drop into the water. Not more than two or three days elapse after they have reached the opposite shore, when they at once proceed to the interior of the forests, in search of places congenial to the general character of their habits. They now resume their ordinary manner of living, which they continue until the approach of spring, when the males, as if leading the way, proceed singly towards the country from which they had retreated. The females follow in small parties of three or four. In the month of October, 1820, I observed a larger number of Ruffed Grouse migrating thus from the States of Ohio, Illinois, and Indiana into Kentucky, than I had ever before remarked. During the short period of their lingering along the north-west shore of the Ohio that season, a great number of them were killed, and they were sold in the Cincinnati market for so small a sum as 12½ cents each.

Although these birds are particularly attached to the craggy sides of mountains and hills, and the rocky borders of rivers and small streams, thickly mantled with evergreen trees and small shrubs of the same nature, they at times remove to low lands, and even enter the thickest cane-brakes, where they also sometimes breed. I have shot some, and have heard them *drumming* in such places, where there were no hills nearer than fifteen or twenty miles. The lower parts of the State of Indiana and also those of Kentucky, are amongst the places where I have discovered them in such situations.

The charming groves which here and there contrast so beautifully with the general dull appearance of those parts of Kentucky and Tennessee, to which the name of *Barrens* is given, are sought by the Ruffed Grouse. These groves afford them abundant food and security. The gentle coolness that prevails in them during the summer heat is agreeable and beneficial to these birds, and the closeness of their undergrowth in other spots moderates the cold blasts of winter. There this species breeds, and is at all times to be found. Their *drumming* is to be heard issuing from these peaceful retreats in early spring, at the same time that the *booming* of their relative, the Pinnated Grouse, is recognised, as it reaches the ear of the traveller, from the different parts of the more open country around. In such places as the groves just mentioned, the species now before you, kind reader, is to be met

with, as you travel towards the south, through the whole of Tennessee and the Choctaw Territory; but as you approach the city of Natchez they disappear, nor have I ever heard of one of these birds having been seen in the State of Louisiana.

The mountainous parts of the Middle States being more usually the chosen residence of this species, I shall, with your permission, kind reader, return to them, and try to give you an account of this valuable Grouse.

The flight of the Ruffed Grouse is straight-forward, rather low, unless when the bird has been disturbed, and seldom protracted beyond a few hundred yards at a time. It is also stiff, and performed with a continued beating of the wings for more than half its duration, after which the bird sails and seems to balance its body as it proceeds through the air, in the manner of a vessel sailing right before the wind. When this bird rises from the ground at a time when pursued by an enemy, or tracked by a dog, it produces a loud whirring sound, resembling that of the whole tribe, excepting the Black Cock of Europe, which has less of it than any other species. This whirring sound is never heard when the Grouse rises of its own accord, for the purpose of removing from one place to another; nor, in similar circumstances, is it commonly produced by our little Partridge. In fact, I do not believe that it is emitted by any species of Grouse, unless when surprised and forced to rise. I have often been lying on the ground in the woods or the fields for hours at a time, for the express purpose of observing the movements and habits of different birds, and have frequently seen a Partridge or a Grouse rise on wing from within a few yards of the spot in which I lay unobserved by them, as gently and softly as any other bird, and without producing any whirring sound. Nor even when this Grouse ascends to the top of a tree, does it make any greater noise than other birds of the same size would do.

I have said this much respecting the flight of Grouse, because it is a prevalent opinion, both among sportsmen and naturalists, that the whirring sound produced by birds of that genus is a necessary effect of their *usual* mode of flight. But that this is an error, I have abundantly satisfied myself by numberless observations.

On the ground, where the Ruffed Grouse spends a large portion of its time, its motions are peculiarly graceful. It walks with an elevated, firm step, opening its beautiful tail gently and with a well-marked jet, holding erect its head, the feathers of which are frequently raised, as are the velvety tufts of its neck. It poises its body on one foot for several seconds at a time, and utters a soft *cluck*, which in itself implies a degree of confidence in the bird that its *tout ensemble* is deserving of the notice of any bystander. Should the bird discover that it is observed, its step immediately changes to

a rapid run, its head is lowered, the tail is more widely spread, and if no convenient hiding-place is at hand, it immediately takes flight with as much of the whirring sound as it can produce, as if to prove to the observer that, when on wing, it cares as little about him as the deer pretends to do, when, on being started by the hound, he makes several lofty bounds, and erects his tail to the breeze. Should the Grouse, however, run into a thicket, or even over a place where many dried leaves lie on the ground, it suddenly stops, squats, and remains close until the danger is over, or until it is forced by a dog or the sportsman himself to rise against its wish.

The shooting of Grouse of this species is precarious, and at times very difficult, on account of the nature of the places which they usually prefer. Should, for instance, a covey of these birds be raised from amongst Laurels (*Kalmia latifolia*) or the largest species of Bay (*Rhododendron Maximum*), these shrubs so intercept the view of them, that unless the sportsman proves quite an adept in the difficult art of pulling the trigger of his gun at the proper moment, and quickly, his first chance is lost, and the next is very uncertain. I say still more uncertain, because at this putting up of the birds, they generally rise higher over the bushes, flying in a straight course, whereas at the second start, they often fly among the laurels, and rise above them in a circuitous manner, when to follow them along the barrel of the gun is considerably more difficult. Sometimes, when these birds are found on the sides of a steep hill, the moment they start, they dive towards the foot of the declivity, take a turn, and fly off in a direction so different from the one expected, that unless the sportsman is aware of the trick, he may not see them again that day. The young birds often prove equally difficult to be obtained, for as they are raised from amongst the closely tangled laurels, they only fly a few yards, and again drop among them. A smart cur-dog generally proves the best kind on these occasions; for no sooner does he start a covey of Ruffed Grouse than his barking alarms the birds as much as the report of a gun, and causes them to rise and alight on the nearest trees, on which they may be shot at with great success.

This leads me to remark, that the prevailing notion which exists in almost every district where these birds are numerous, that on firing at the lowest bird perched on a tree, the next above will not fly, and that by continuing to shoot at the lowest in succession, the whole may be killed, is contradicted by my experience; for on every attempt which I have made to shoot several in this manner on the same tree, my efforts have proved unsuccessful, unless indeed during a fall of snow, when I have killed three and sometimes four. The same cause produces the same effect on different birds. It may happen, however, that in districts covered with deep snow for several weeks, during severe winters, these birds, becoming emaciated and weak, may stand a

repetition of shots from a person determined to shoot Grouse even when they are good for nothing; but, kind reader, this barbarous taste is, I hope, no more yours than it is mine.

During spring, and towards the later part of autumn, at which time the Ruffed Grouse is heard *drumming* from different parts of the woods to which it resorts, I have shot many a fine cock by imitating the sound of its own wings striking against the body, which I did by beating a large inflated bullock's bladder with a stick, keeping up as much as possible the same *time* as that in which the bird beats. At the sound produced by the bladder and the stick, the male Grouse, inflamed with jealousy, has flown directly towards me, when, being prepared, I have easily shot it. An equally successful stratagem is employed to decoy the males of our little partridge by imitating the call-note of the female during spring and summer; but in no instance, after repeated trials, have I been able to entice the Pinnated Grouse to come towards me, whilst imitating the *booming* sounds of that bird.

Early in spring, these birds are frequently seen feeding on the tender buds of different trees, and at that season are more easily approached than at any other. Unfortunately, however, they have not by this time recovered their flesh sufficiently to render them worthy of the attention of a true sportsman, although their flavour has already improved. When our mountains are covered with a profusion of huckleberries and whortleberries, about the beginning of September, then is the time for shooting this species, and enjoying the delicious food which it affords.

The Ruffed Grouse, on alighting upon a tree, after being raised from the ground, perches amongst the thickest parts of the foliage, and, assuming at once an erect attitude, stands perfectly still, and remains silent until all appearance of danger has vanished. If discovered when thus perched, it is very easily shot. On rising from the ground, the bird utters a cackling note repeated six or seven times, and before taking wing emits a lisping sort of whistle which seems as if produced by the young of another bird, and is very remarkable.

When the ground is covered with snow sufficiently soft to allow this bird to conceal itself under it, it dives headlong into it with such force as to form a hole several yards in length, re-appears at that distance, and continues to elude the pursuit of the sportsman by flight. They are sometimes caught while beneath the snow. Many of them are taken alive in trap boxes during winter, although the more common method of catching or rather destroying them is by setting dead falls with a figure-of-four trigger.

Early in April, the Ruffed Grouse begins to *drum* immediately after dawn and again towards the close of day. As the season advances, the

drumming is repeated more frequently at all hours of the day; and where these birds are abundant, this curious sound is heard from all parts of the woods in which they reside. The drumming is performed in the following manner. The male bird, standing erect on a prostrate decayed trunk, raises the feathers of its body, in the manner of a Turkey-cock, draws its head towards its tail, erecting the feathers of the latter at the same time, and raising its ruff around the neck, suffers its wings to droop, and struts about on the log. A few moments elapse, when the bird draws the whole of its feathers close to its body, and stretching itself out, beats its sides with its wings in the manner of the domestic Cock, but more loudly, and with such rapidity of motion, after a few of the first strokes, as to cause a tremor in the air not unlike the rumbling of distant thunder. This, kind reader, is the "*drumming*" of the Pheasant. In perfectly calm weather it may be heard at the distance of two hundred yards, but might be supposed to proceed from a much greater distance. The female, which never drums, flies directly to the place where the male is thus engaged, and, on approaching him, opens her wings before him, balances her body to the right and left, and then receives his caresses.

The same trunk is resorted to by the same birds during the season, unless they are frequently disturbed. These trunks are easily known by the quantity of excrements and feathers about them. The males have the liberty of promiscuous concubinage, although not to such an extent as those of the Pinnated Grouse. They have frequent and severe battles at this season, which, although witnessed by the females, are never interrupted by them. The drumming sounds of these birds lead to their destruction, every young sportsman taking the unfair advantage of approaching them at this season, and shooting them in the act.

About the beginning of May, the female retires to some thicket in a close part of the woods, where she forms a nest. This is placed by the side of a prostrate tree, or at the foot of a low bush, on the ground, in a spot where a heap of dry leaves has been formed by the wind. The nest is composed of dried leaves and herbaceous plants. The female lays from five to twelve eggs, which are of a uniform dull yellowish color, and are proportionate in size to the bird. The latter never covers them on leaving the nest, and in consequence the Raven and the Crow, always on the look out for such dainties, frequently discover and eat them. When the female is present, however, she generally defends them with great obstinacy, striking the intruder with her wings and feet, in the manner of the Common Hen.

The young run about and follow the mother, the moment after they leave the egg. They are able to fly for a few yards at a time, when only six or seven days old, and still very small. The mother leads them in search of

food, covers them at night with her wings, and evinces the greatest care and affection towards them on the least appearance of danger, trying by every art in her power to draw the attention of her enemies to herself, feigning lameness, tumbling and rolling about as if severely wounded, and by this means generally succeeding in saving them. The little ones squat at the least chuck of alarm from the mother, and lie so close as to suffer one to catch them in the hand, should he chance to discover them, which, however, it is very difficult to do. The males are then beginning to associate in small parties, and continue separated from the females until the approach of winter, when males, females, and young mingle together. During summer, these birds are fond of dusting themselves, and resort to the roads for that purpose, as well as to pick up gravel. I have observed this species copulating towards autumn, but have not been able to account for this unseasonable procedure, as only one brood is raised in the season.

These birds have various enemies besides man. Different species of Hawks destroy them, particularly the Red-tailed Hawk and the Cooper's Hawk. The former watches their motions from the tops of trees, and falls upon them with the swiftness of thought, whilst the latter seizes upon them as he glides rapidly through the woods. Pole-cats, weasels, racoons, opossums, and foxes, are all destructive foes to them. Of these, some are content with sucking their eggs, while others feed on their flesh.

I have found these birds most numerous in the States of Pennsylvania and New York. They are brought to the markets in great numbers, during the winter months, and sell at from 75 cents to a dollar a-piece, in the eastern cities. At Pittsburg I have bought them, some years ago, for 12½ cents the pair. It is said that when they have fed for several weeks on the leaves of the *Kalmia latifolia*, it is dangerous to eat their flesh, and I believe laws have been passed to prevent their being sold at that season. I have, however, eaten them at all seasons, and although I have found their crops distended with the leaves of the Kalmia, have never felt the least inconvenience after eating them, nor even perceived any difference of taste in their flesh. I suspect it is only when the birds have been kept a long time undrawn and unplucked, that the flesh becomes impregnated with the juice of these leaves.

The food of this species consists of seeds and berries of all kinds, according to the season. It also feeds on the leaves of several species of evergreens, although these are only resorted to when other food has become scarce. They are particularly fond of fox-grapes and winter-grapes, as well as strawberries and dewberries. To procure the latter, they issue from the groves of the Kentucky Barrens, and often stray to the distance of a mile. They roost on trees, amongst the thickest parts of the foliage, sitting at some

distance from each other, and may easily be smoked to death, by using the necessary precautions.

I cannot conclude this article, kind reader, without observing how desirable the acquisition of this species might be to the sportsmen of Europe, and especially to those of England, where I am surprised it has not yet been introduced. The size of these birds, the beauty of their plumage, the excellence of their flesh, and their peculiar mode of flying, would render them valuable, and add greatly to the interest of the already diversified sports of that country. In England and Scotland there are thousands of situations that are by nature perfectly suited to their habits, and I have not a doubt that a few years of attention would be sufficient to render them quite as common as the Grey Partridge.

It is now ascertained that this species extends over the whole breadth of the Continent, it being found from our Atlantic districts to those bordering the Pacific Ocean, Mr. TOWNSEND having observed it on the Missouri and along the Columbia river, and Mr. DRUMMOND having procured specimens in the valleys of the Columbia river. According to Dr. RICHARDSON, it reaches northward as far as the 56th parallel, and spends the winter on the banks of the Saskatchewan, where it is plentiful. It also exists in the Texas. It is more abundant in our western, middle, and eastern districts than in our southern states. In the maritime portions of South Carolina it does not exist. In Massachusetts, Maine, New Brunswick, and Nova Scotia, it is very plentiful; but I saw none in Labrador, although I was assured that it occurs there, and did not hear of it in Newfoundland.

RUFFED GROUSE, *Tetrao umbellus*, Wils. Amer. Orn., vol. vi. p. 46.
TETRAO UMBELLUS, Bonap. Syn., p. 126.
TETRAO UMBELLUS, *Ruffed Grouse*, Swains. & Rich. F. Bor. Amer., vol. ii. p. 342.
RUFFED GROUSE, Nutt. Man., vol. i. p. 657.
RUFFED GROUSE, *Tetrao umbellus*, Aud. Orn. Biog., vol. i. p. 211; vol. v. p. 560.

Male, 18, 24.

Common from Maryland to Labrador, and in the interior from the mountainous districts to Canada and the Saskatchewan. Columbia river. Resident.

Adult Male.

Bill short, robust, slightly arched, rather obtuse, the base covered by feathers; upper mandible with the dorsal outline straight in the feathered part, convex towards the end, the edges overlapping, the tip declinate; under mandible somewhat bulging toward the tip, the sides convex. Nostrils concealed among the feathers. Head and neck small. Body bulky. Feet of ordinary length; tarsus feathered, excepting at the lower part anteriorly,

where it is scutellate, spurless ; toes scutellate above, pectinated on the sides ; claws arched, depressed, obtuse.

Plumage compact, glossy. Feathers of the head narrow and elongated into a curved tuft. A large space on the neck destitute of feathers, but covered over by an erectile ruff of elongated feathers, of which the upper are silky, shining, and curved forwards at the end, which is very broad and rounded. Wings short, broad, much rounded and curved, the third and fourth quills longest. Tail long, ample, rounded, of eighteen feathers.

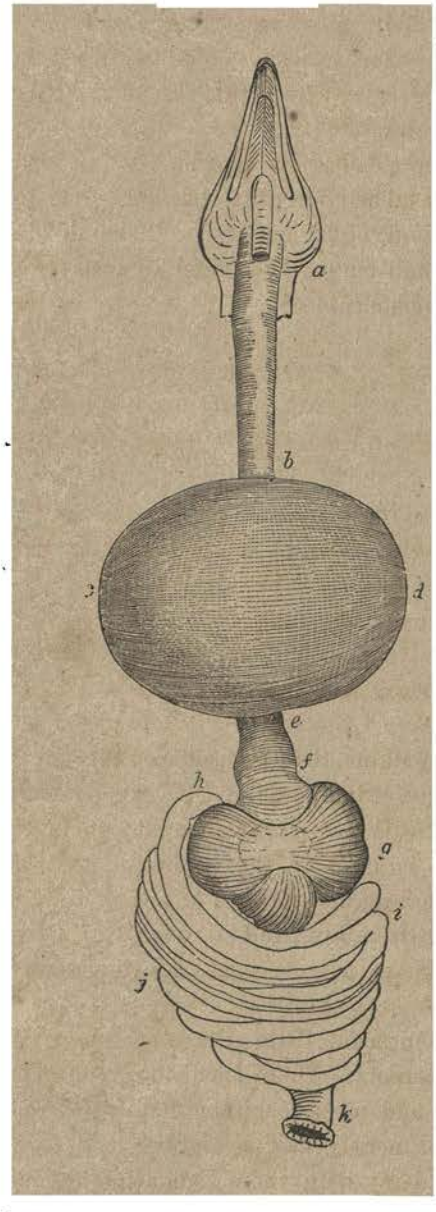
Bill horn-colour, brownish-black towards the tip. Iris hazel. Feet yellowish-grey. Upper part of the head and hind part of the neck bright yellowish-red. Back rich chestnut, marked with oblong white spots, margined with black. Upper wing-coverts similar to the back. Quills brownish-dusky, their outer webs pale reddish, spotted with dusky. Upper tail-coverts banded with black. Tail reddish-yellow, barred and minutely mottled with black, and terminated by a broad band of the latter colour, between two narrow bands of bluish-white, of which one is terminal. A yellowish-white band from the upper mandible to the eye, beyond which it is prolonged. Throat and lower part of the neck light brownish yellow. Lower ruff feathers of the same colour, barred with reddish-brown, the upper black, with blue reflections. A tuft of light chestnut feathers under the wings. The rest of the under parts yellowish-white, with broad transverse spots of brownish-red ; the abdomen yellowish-red ; and the under tail-coverts mottled with brown.

Length 18 inches, extent of wings 2 feet ; bill along the ridge $\frac{3}{4}$, along the gap $1\frac{1}{12}$; tarsus $1\frac{7}{12}$, middle toe $1\frac{3}{4}$.

Adult Female.

The plumage of the female is less developed and inferior in beauty. The feathers of the head and ruff are less elongated, the latter of a duller black. The tints of the plumage generally are lighter than in the male.

A remarkable difference of plumage is observed in specimens from the opposite parts of the continent, those from the eastern districts being invariably much greyer, especially on the tail-feathers, than those procured along the Ohio, or in Virginia. These constant differences have tempted some persons to suppose that we have two nearly allied species, instead of one ; but after the closest examination of all their parts, as well as of their habits, I never could find anything tending to support this supposition. In some instances, the eggs of what I conceive a young female, have proved much smaller than others, and Dr. T. M. Brewer has procured in Massachusetts a laying of them minutely spotted with dull reddish-brown, on a ground of a light salmon colour. The eggs usually measure an inch and a



half in length, by an inch and two-twelfths in breadth, and are of a uniform dull yellowish tint.

In this species the palate is flat, with two longitudinal ridges converging anteriorly; the space between these ridges and the slit covered with small papillæ. The tongue is triangular, flattened, sagittate, and papillate at the base, 9 twelfths long, fleshy and pointed. The width of the mouth is 8 twelfths. The liver is extremely small, its lobes equal, and 1 inch in length. The heart is also small, 11 twelfths long, 7 twelfths in breadth. The œsophagus, *a b f*, is 7¼ inches in length; for three inches, *a b*, it has a width of only 5 twelfths; it then enlarges to form a vast crop, *b c d*, 3½ inches in breadth, and 2½ inches in length, that part of it connected with which is 1 inch 5 twelfths in length; it then contracts to ½ inch, *e*; the proventriculus, *e f*, 7½ twelfths in breadth. The stomach, *c d*, is a very powerful muscular gizzard, 1 inch 8 twelfths long, 1 inch 9 twelfths broad; the inferior muscle very large, 1 twelfth thick; the lateral muscles extremely developed, the left 6 twelfths, the right 5 twelfths in thickness; the epithelium thick, tough, yellowish-brown, with two concave surfaces, which are deeply grooved longitudinally. The proventricular glands are large, 3 twelfths long, occupying a space of only 7 twelfths of an inch in breadth. The duodenum, *h i*, curves at the distance of 4 inches. The intestine, *h i j k*, is 4 feet 1 inch long; the cœca come off at a distance of 6½ inches from the extremity; one of them 17½, the other 16½ inches long; their width for three inches 4 twelfths, in the rest of their extent 6 twelfths; they are narrowed toward the end, and

Canada Grouse.

1. 2. Males 3 Females.

Drawn from Nature by J.J.Audubon F.R.S.F.L.S.

4. Trillium pictum 5. Streptopus distortus.

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terminate in a blunt nipple-like point; their inner surface has 7 longitudinal ridges, and they are filled with a pultaceous mass. The width of the duodenum is 5½ twelfths; that of the greater part of the rest of the intestine 6 twelfths; the cloaca, *k*, is not enlarged.

The trachea is 6 inches long, rather slender, its breadth at the top 3 twelfths, at the lower part 2½ twelfths. The rings are feeble and unossified, 100 in number. There are no inferior laryngeal muscles. The bronchi are very short, rather wide, of about 12 half rings. The lateral muscles are rather large, the sterno-tracheal slips moderate.

THE SPOTTED OR CANADA GROUSE.

TETRAO CANADENSIS, *Linn.*

PLATE CCXCIV.—MALES AND FEMALES.

No sooner had I entered the State of Maine, than I considered the Canada Grouse as one of the principal objects of my inquiry. Every person to whom I spoke about it, assured me that it was rather abundant during the whole year, and consequently that it bred in the country. All this fortunately proved to be quite true, but no one told me of the difficulties I should have to encounter in watching its habits; and although I ultimately succeeded in this, the task was perhaps as severe as any which I ever undertook.

In August, 1832, I reached the delightful little village of Dennisville, about eighteen miles distant from Eastport. There I had the good fortune of becoming an inmate of the kind and most hospitable family of Judge LINCOLN, who has resided there for nearly half a century, and who is blessed with a family of sons equal to any with whom I am acquainted, for talents, perseverance, and industry. Each of these had his own peculiar avocation, and I naturally attached myself more particularly to one who ever since his childhood has manifested a decided preference for ornithological pursuits. This young gentleman, THOMAS LINCOLN, offered to lead me to those retired woods where the Spruce Partridges were to be found. We accordingly set out on the 27th of August, my two sons accompanying us. THOMAS, being a perfect woodsman, advanced at our head, and I can

assure you, reader, that to follow him through the dense and tangled woods of his native country, or over the deep mosses of Labrador, where he accompanied me afterwards, would be an undertaking not easily accomplished. The weather was warm, and the musquitoes and moose flies did their best to render us uncomfortable. We however managed to follow our guide the whole day, over fallen trees, among tangled brushwood, and through miry ponds; yet not a single Grouse did we find, even in places where he had before seen them, and great was my mortification, when, on our return towards sunset, as we were crossing a meadow belonging to his father, not more than a quarter of a mile from the village, the people employed in making hay informed us that about half an hour after our departure they had seen a fine covey. We were too much fatigued to go in search of them, and therefore made for home.

Ever ardent, if not impatient, I immediately made arrangements for procuring some of these birds, offering a good price for a few pairs of old and young, and in a few days renewed my search in company with a man who had assured me he could guide me to their breeding grounds, and which he actually did, to my great pleasure. These breeding grounds I cannot better describe than by telling you that the larch forests, which are there called "Hackmetack Woods," are as difficult to traverse as the most tangled swamps of Labrador. The whole ground is covered by the most beautiful carpeting of verdant moss, over which the light-footed Grouse walk with ease, but among which we sunk at every step or two up to the waist, our legs stuck in the mire, and our bodies squeezed between the dead trunks and branches of the trees, the minute leaves of which insinuated themselves among my clothes, and nearly blinded me. We saved our guns from injury, however, and seeing some of the Spruce Partridges before they perceived us, we procured several specimens. They were in beautiful plumage, but all male birds. It is in such places that these birds usually reside, and it is very seldom that they are seen in the open grounds, beyond the borders of their almost impenetrable retreats. On returning to my family, I found that another hunter had brought two fine females, but had foolishly neglected to bring the young ones, which he had caught and given to his children, who, to my great mortification, had already cooked them when my messenger arrived at his house.

The Spruce Partridge or Canada Grouse breeds in the States of Maine and Massachusetts about the middle of May, nearly a month earlier than at Labrador. The males pay their addresses to the females by strutting before them on the ground or moss, in the manner of the Turkey Cock, frequently rising several yards in the air in a spiral manner, when they beat their wings violently against their body, thereby producing a drumming noise, clearer

than that of the Ruffed Grouse, and which can be heard at a considerable distance. The female places her nest beneath the low horizontal branches of fir trees, taking care to conceal it well. It consists of a bed of twigs, dry leaves and mosses, on which she deposits from eight to fourteen eggs, of a deep fawn colour, irregularly splashed with different tints of brown. They raise only one brood in the season, and the young follow the mother as soon as hatched. The males leave the females whenever incubation has commenced, and do not join them again until late in autumn; indeed, they remove to different woods, where they are more shy and wary than during the love season or in winter.

This species walks much in the manner of our Partridge. I never saw one jerk its tail as the Ruffed Grouse does, nor do they burrow in the snow like that bird, but usually resort to trees to save themselves from their pursuers. They seldom move from thence at the barking of a dog, and when roused fly only to a short distance, uttering a few *clucks*, which they repeat on alighting. In general, when a flock is discovered, each individual forming it may be easily caught, for so seldom do they see men in the secluded places which they inhabit, that they do not seem to be aware of the hostile propensities of the race.

Along the shores of the Bay of Fundy, the Spruce Partridge is much more abundant than the Ruffed Grouse, which indeed gradually becomes scarcer the farther north we proceed, and is unknown in Labrador, where it is replaced by the Willow Ptarmigan, and two other species. The females of the Canada Grouse differ materially in their colouring in different latitudes. In Maine, for instance, they are more richly coloured than in Labrador, where I observed that all the individuals procured by me were of a much greyer hue than those shot near Dennisville. The like difference is perhaps still more remarkable in the Ruffed Grouse, which are so very grey and uniformly coloured in the Northern and Eastern States, as to induce almost every person to consider them as of a species distinct from those found in Kentucky, or any of the southern mountainous districts of the Union. I have in my possession skins of both species procured a thousand miles apart, that present these remarkable differences in the general hue of their plumage.

All the species of this genus indicate the approach of rainy weather or a snow storm, with far more precision than the best barometer; for on the afternoon previous to such weather, they all resort to their roosting places earlier by several hours than they do during a continuation of fine weather. I have seen groups of Grouse flying up to their roosts at mid-day, or as soon as the weather felt heavy, and have observed that it generally rained in the course of that afternoon. When, on the contrary, the same flock

would remain busily engaged in search of food until sunset, I found the night and the following morning fresh and clear. Indeed, I believe that this kind of foresight exists in the whole tribe of gallinaceous birds.

One day, while on the coast of Labrador, I accidentally almost walked upon a female Canada Grouse surrounded by her young brood. It was on the 18th of July. The affrighted mother, on seeing us, ruffled up all her feathers like a common hen, and advanced close to us as if determined to defend her offspring. Her distressed condition claimed our forbearance, and we allowed her to remain in safety. The moment we retired, she smoothed down her plumage, and uttered a tender maternal chuck, when the little ones took to their wings, although they were, I can venture to assert, not more than *one week old*, with so much ease and delight, that I felt highly pleased at having allowed them to escape.

Two days afterwards, my youthful and industrious party returned to the Ripley with a pair of these Grouse in moult. This species undergoes that severe trial at a much earlier season than the Willow Ptarmigan. My son reported that some young ones which he saw with their mother, were able to fly fully a hundred yards, and alighted on the low trees, among which he caught several of them, which, however, died before he reached the vessel.

This species is found not only in the State of Maine, but also in the mountainous districts of New Hampshire, and the northern parts of New York, as well as around our northern great lakes, and the head waters of the Missouri. It is abundant in the British provinces of New Brunswick, Nova Scotia, Newfoundland, and Labrador.

Among the great number, procured at all seasons of the year, which I have examined, I never found one without the rufous band at the extremity of the tail represented in the plate ; nor did I see any having the terminal white spot on the upper tail-coverts exhibited in figures of this species.

Their food consists of berries of different sorts, and the young twigs and blossoms of several species of plants. In the summer and autumn I have found them gorged with the berries of the plant represented in the plate, and which is commonly called "Solomon's Seal." In the winter I have seen the crop filled with the short leaves of the larch or Hackmetack.

I have frequently heard it said that these birds could be knocked down with sticks, or that a whole covey could be shot, while perched on trees, by beginning at the lowest one; but I have never witnessed anything of the kind, and therefore cannot vouch for the truth of the assertion. During the autumn of 1833, these birds were uncommonly abundant in the State of Maine. My friend EDWARD HARRIS, of New York, THOMAS LINCOLN, and others, killed a great number ; and the last mentioned gentleman procured a pair alive, which were fed on oats and did well.

The flesh of this Grouse is dark, and fit for being eaten only when it has fed on berries. In winter, when it feeds on the leaves of trees and other plants, the flesh is quite bitter and disagreeable.

According to Dr. RICHARDSON, all the thick and swampy black-spruce forests between Canada and the Arctic Sea abound with this bird, and considerable numbers exist in the severest seasons as high as the 67th parallel. I am informed by Mr. TOWNSEND that it is also plentiful on the Rocky Mountains and the plains of the Columbia, from which parts I have obtained specimens differing in nothing from others procured in Maine and Labrador. I have also compared those in the Edinburgh Museum, which Mr. DOUGLASS was pleased to name *Tetrao Franklinii*, with several of my own, and feel perfectly confident that they are all of one and the same species.

SPOTTED GROUSE, *Tetrao Canadensis*, Bonap. Amer. Orn., vol. iii. pl. 20.

TETRAO CANADENSIS, Bonap. Syn., p. 127.

TETRAO CANADENSIS, *Spotted Grouse*, Swains. & Rich. F. Bor. Amer., vol. ii. p. 346.

TETRAO FRANKLINII, *Franklin's Grouse*, Swains. & Rich. F. Bor. Amer., vol. ii. p. 348.

SPOTTED GROUSE, Nutt. Man., vol. i. p. 667.

SPOTTED OR CANADA GROUSE, *Tetrao Canadensis*, Aud. Orn. Biog., vol. ii. p. 437; vol. v. p. 563.

Male, 15¾, 21¾, Female, 15½, 21.

Plentiful from the northern parts of New York to Labrador, as well as from Canada to the Arctic Sea. Columbia river. Partially migratory in winter.

Adult Male.

Bill short, robust, slightly arched, rather obtuse, the base covered by feathers; upper mandible with the dorsal outline convex towards the end, the edges sharp and overlapping, the tip declinate; lower mandible slightly convex, in its dorsal outline, the back broad and rounded, the sides sloping outwards, the tip rather rounded. Nostrils basal, lateral, concealed by the short feathers. Head small, neck of ordinary length, body full. Feet short, rather small; tarsus short, roundish, feathered; toes scutellate above, broadly margined and pectinate, the anterior ones connected by a web at the base, the hind toe very small, the two lateral about equal, the middle one much longer; claws short, arched, compressed, rather obtuse.

Plumage compact, slightly glossed. Feathers of the head very short. Wings short, broad, much rounded and curved, the third quill longest, the fourth next, the second and fifth nearly equal, the first very short. Tail ample, of ordinary length, rounded, of sixteen broad rotundato-truncate feathers, having a minute mucro.

Bill and claws brownish-black. Iris hazel. Fringed membrane over the eyes vermillion. Toes purplish-grey. Upper plumage and flanks brownish-black, transversely barred with brownish-grey, the tip of each feather with two bars of the latter colour; on the hind parts the bars are larger, and the pale ones more tinged with brown. Quills and larger coverts blackish-brown, the outer edges of the primaries pale brownish-grey, and those of the secondaries minutely mottled with the same. Tail-coverts brownish-black, minutely mottled and tipped with greyish-white; tail feathers darker and tipped with dull brownish-red. Lower parts black, the feathers on the throat having a white spot near the end, those of the lower and lateral parts of the neck unspotted, of the breast with a broad subterminal spot, and the under tail-coverts largely tipped with white. Inner wing-coverts clove-brown, the proximal and axillaries tipped with white.

Length 15¾ inches, extent of wings 21¾; bill along the back $\frac{8}{12}$, along the edge $1\frac{2}{12}$; tarsus 1¼; weight 17 oz.

Adult Female.

The female is not much smaller. The superciliary membrane is much less, but of the same colour. The upper parts are nearly of the same tints, but more broadly barred; the head, sides of the neck, fore neck, and anterior part of the breast yellowish-red, barred with brownish-black; the lower parts greyish-black, barred with reddish-white. The tail is minutely mottled and tipped with brownish-red. The younger females have more of the yellowish-red tints than the old ones. In other respects the colouring is nearly similar.

Length 15½ inches, extent of wings 21; weight 1503.

In a male preserved in spirits, the mouth is of the moderate width of 10½ twelfths; the palate flat, with two longitudinal ridges; the posterior aperture of the nares 8 twelfths long, strongly papillate on the edges; the tongue short, being only 7½ twelfths in length, triangular, a little concave above, emarginate at the base, with long pointed papillæ, disposed in two series, the tip somewhat obtuse. The œsophagus is 6½ inches in length; its width from 10 twelfths to 8 twelfths for the length of 3½ inches, where it opens into a globular sac 2 inches 9 twelfths in diameter, the space between the upper and lower aperture of which is only 9 twelfths. The stomach is a very large and powerful gizzard, of an irregular elliptical form, 1½ inches in length, 2¼ inches in breadth; the right muscle 9 twelfths, the left 11 twelfths in thickness; the tendons large and radiated; the epithelium tough, horny, with two nearly flat, smooth, grinding surfaces. The intestine is 3 feet 2 inches long, with a nearly uniform width of 3 twelfths. The cœca commence at the distance of 4 inches from the extremity, and are 16½ inches long, their width 3½ twelfths, excepting for 3 inches at the commencement, where it is

Dusky Grouse.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

1. Male. 2. Female.

Lith.d Printed & Col.d by J. T. Bowen. Philad.a

only 2½ twelfths; on their inner surface are six longitudinal villous ridges, the intervals between which are also covered with prominent villi, as is the whole interior of the intestine. There is no enlargement of the rectum.

The trachea is 5½ inches long, much flattened, at first 3 twelfths in breadth, presently contracting to 2¼ twelfths, and so continuing until toward the lower end, where it gradually enlarges to 3¼ twelfths. The rings are very feeble, slightly ossified, 102 in number, with 2 dimidiate rings. The lateral muscles are slender, as are the sterno-tracheal. There are no inferior laryngeal muscles.

Trillium Pictum, *Pursh*, Flor. Amer. Sept., vol. i. p. 244.—Hexandria, Trigynia, *Linn.*

This plant, as well as the other species represented, grows abundantly in Maine, in all such secluded places as are frequented by the Spotted Grouse, which eagerly devours its berries. It has ovate acuminate leaves, of a light green colour, thin and undulated; an erect peduncle; white flowers, veined with purple at the bottom, and having the petals lanceolate, recurved, nearly twice the length of the calyx. The berries are ovate and of a scarlet colour.

Streptopus distortus, *Mich.*, Flor. Amer., vol. i. p. 200. *Pursh*, Flor. Amer. Sept., vol. i. p. 232.—Hexandria, Monogynia, *Linn.*

About two feet high, with alternate, amplexicaul, ovate, acute, ribbed, light green leaves; greenish-yellow flowers, on pedicels which are distorted in the middle; and oval scarlet berries.

DUSKY GROUSE.

Tetrao obscurus, *Say.*

PLATE CCXCV.—Male and Female.

As I have never seen this species in its native haunts, I am obliged to have recourse to the observations of those who have had opportunities of studying its habits. The only accounts that can be depended upon are those of Dr. Richardson, Mr. Townsend and Mr. Nuttall, which I here give

in order, beginning with what is stated respecting it in the Fauna Boreali-Americana by the first of these naturalists.

"This large Grouse inhabits the Rocky Mountains from latitude 40° to 60°, and perhaps to a greater extent, for the limits of its range either northward or southward have not been ascertained. It has been known to the fur-traders for nearly thirty years; but it was first introduced to the scientific world by Mr. SAY, who, in 1820, accompanied Major LONG to the source of the Missouri; and a female specimen, deposited by him in the Philadelphia Museum, has lately been figured by the Prince of MUSIGNANO in his continuation of WILSON's Ornithology. I had no opportunity of observing the habits of this bird myself, but was informed by Mr. DRUMMOND that, in the mornings during pairing time, 'the usual station of the male is on some rocky eminence or large stone, where he sits swelling out the sides of his neck, spreading his tail, and repeating the cry of "Coombe, Coombe," in a soft hollow tone.' Its food consists of various berries, and its flesh is very palatable. Mr. ALEXANDER STEWART, a chief factor of the Hudson's Bay Company, who has often crossed the mountains, informs me that the males of this species fight each other with such animosity, that a man may take one of them up in his hand before it will quit its antagonist."

Dr. RICHARDSON adds in a note, that "the description and figure of Mr. SAY's specimen agree so completely with our younger female specimens, that there can be no doubt of their specific identity; but it is proper to observe that there is some discrepancy in the dimensions. The Prince of MUSIGNANO states the total length of the bird to be eighteen inches, that of the wing nine inches and a half. The wing of the largest of our males is scarcely so long, whilst the biggest of our females, measuring twenty-one inches in total length, has a wing barely eight inches long. This, perhaps, merely indicates the uncertainty of measurements taken from prepared specimens. Mr. DOUGLAS's specimens in the Edinburgh Museum are of younger birds than ours, but evidently the same species." These remarks correspond with what I have so often repeated, that age, sex, and different states of moult, produce disparities in individuals of the same species.

Mr. TOWNSEND, in the notes with which he has favoured me, has the following observations:—"Dusky Grouse, *Tetrao obscurus*. *Qul-al-lalleun* of the Chinooks. First found in the Blue Mountains, near Wallah Wallah, in large flocks, in September. Keep in pine woods altogether, never found on the plains; they perch on the trees. Afterwards found on the Columbia river in pairs in May. The eggs are numerous, of a cinereous-brown colour, blunt at both ends, and small for the size of the bird. The actions of the female, when the young are following her, are precisely the same as the

Ruffed Grouse, using all the arts of that bird in counterfeiting lameness, &c. Female smaller than the male, lighter coloured, and wants the yellow warty skin upon the sides of the neck."

Mr. NUTTALL'S notice is as follows:—"The Dusky Grouse breeds in the shady forests of the Columbia, where we heard and saw them throughout the summer. The male at various times of the day makes a curious uncouth tooting, almost like the sound made by blowing into the bung-hole of a barrel, *boo, wh'h, wh'h, wh'h, wh'h*, the last note descending into a kind of echo. We frequently tried to steal on the performer, but without success, as, in fact, the sound is so strangely managed that you may imagine it to come from the left or right indifferently. They breed on the ground, as usual, and the brood keep together nearly all winter. The Ruffed Grouse also breeds here commonly, and I one day found the nest concealed near a fallen log, but it was at once forsaken after this intrusion, though I did not touch the eggs."

From the examination of specimens in my possession, I am persuaded that this species, like *Tetrao Cupido*, has the means of inflating the sacs of bare skin on the sides of the neck, by means of which, in the breeding season, are produced the curious sounds above described.

TETRAO OBSCURUS, Say, Long's Exped.
TETRAO OBSCURUS, Bonap. Syn., p. 127.
DUSKY GROUSE, *Tetrao obscurus*, Bonap. Amer. Orn., vol. iii. pl. 18.
TETRAO OBSCURUS, *Dusky Grouse*, Swains. & Rich. F. Amer., vol. ii. p. 344.
DUSKY GROUSE, Nutt. Man., vol. i. p. 666.
DUSKY GROUSE, *Tetrao obscurus*, Aud. Orn. Biog., vol. iv. p. 446.

Male, 22, wing 9½. Female, 19½, wing 9.

From the eastern spurs of the Rocky Mountains to the Columbia river, and northward to Hudson's Bay. Abundant. Resident.

Adult male.

Bill short, robust, slightly arched, rather obtuse, the base covered by feathers. Upper mandible with the dorsal line convex and declinate, the ridge convex, the sides convex, the edges sharp and overlapping, the tip thin-edged and rounded; lower mandible with the angle long and wide, the dorsal line ascending and convex, the ridge broad, the sides convex, the edges inflected, the tip rounded. Nostrils in the fore part of the large and feathered nasal depression, roundish.

Head small, ovate; neck of ordinary length; body large and full. Feet stout, of moderate length; tarsus short, feathered; toes stout; the first very small, the lateral about equal, and much shorter than the third; the anterior toes connected by basal scaly membranes, partially covered with feathers;

all with broad and short scutella, margined, but scarcely pectinate, the lateral scales not being prominent. Claws rather large, arched, compressed, rather obtuse.

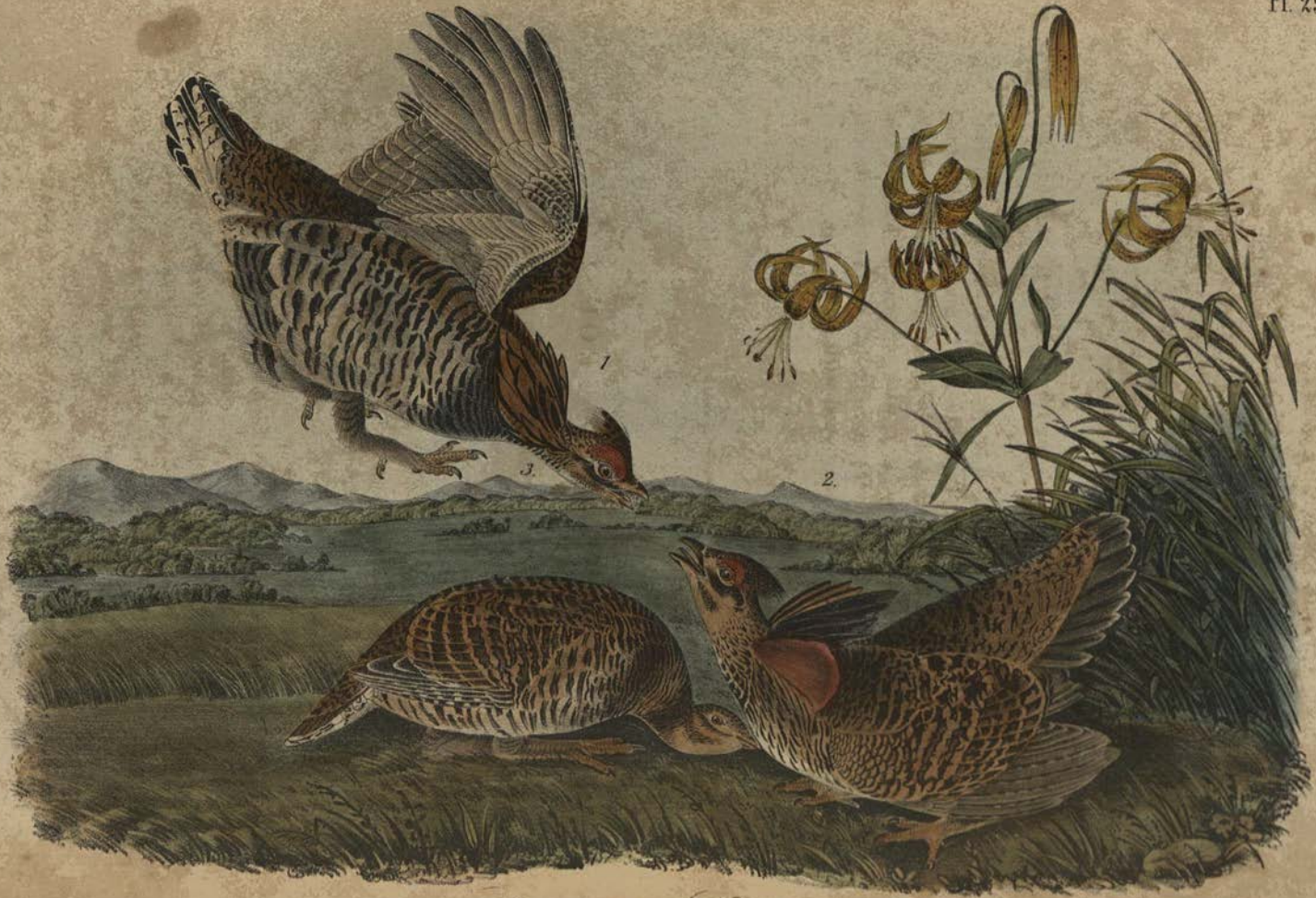
Plumage full, soft, rather blended, the feathers broad and rounded. A bare papillate space around the eye. Feathers on the upper part of the head narrow and elongated. Wings rather short, convex, much rounded; the quills very strong; the third longest, the fourth next, the third and sixth about equal, as are the first and seventh. Tail large, of ordinary length, rounded, of twenty feathers, which are broader toward the end, and abruptly rounded.

Bill brownish-black, lighter at the base. Iris dark hazel. Toes bluish-grey, claws wood-brown. Papillar space around the eye vermilion. Upper parts blackish-brown, the wings lighter. The elongated feathers on the head greyish-brown; the hind neck minutely undulated with bluish-grey; the scapulars, inner secondaries, and smaller wing-coverts also minutely undulated with grey and brownish-red, and most of the latter with a small greyish tip; the rump and upper tail-coverts obscurely undulated with grey. Alula, primary coverts and quills, clove-brown, the secondaries bordered and tipped with yellowish-grey; the primaries mottled with grey on their outer webs. The tail is black. The sides of the head, fore part and sides of the neck, and fore part of the breast greyish-black; the lore and throat are barred with white; the greyish-black of the breast passes into blackish-grey, and finally into dull bluish-grey; the feathers of the abdomen tipped with greyish-white, as are the lower rump and tail-coverts, which have moreover one or two narrow bars of the same; the flanks undulated with black and marked with an elongated white spot along the central part and on the tip; axillary feathers white, as are the inner wing-coverts; the tarsal feathers brownish-grey. The concealed part of the plumage is light grey, unless on the feathers around the bare space on each side of the neck, which is of an orange colour, and which the bird inflates.

Length to end of tail 22 inches, to end of wings 15½; to end of claw 18½; extent of wings 30; wing from flexure 9½; tail 7½; bill along the ridge 1, along the edge of lower mandible $1\frac{2}{12}$; tarsus $1\frac{9}{12}$; hind toe $\frac{6}{12}$, its claw $\frac{6}{12}$; second toe $1\frac{2}{12}$, its claw $\frac{7}{12}$; third toe $1\frac{10}{12}$, its claw $\frac{8}{12}$; fourth toe $1\frac{3}{12}$, its claw $\frac{8}{12}$.

Female.

The female is considerably smaller than the male. The bare papillar space over the eye is of much less extent, but, as well as the bill and feet, is coloured as in the male. The upper parts are dark greyish-brown, barred on the neck with grey, or the other parts barred and minutely undulated with yellowish-brown; the wings as in the male, but lighter and more



Pinnated Grouse

mottled ; the tail greyish-brown, becoming black toward the end, the middle feathers undulated like the back, and having four grey bands with a terminal white one. The sides of the head and the throat are greyish-white, undulatingly barred with brown ; the general colour of the fore-neck is greyish-brown, with pale sienna bands ; on the breast the colour is brownish-grey, and the colours and markings of the rest of the under parts are as in the male, but paler.

Length to end of tail, 19¼ inches ; wing from flexure, 9 ; tail, 6¼ ; bill along the ridge, $\frac{1}{12}$.

In a specimen in my possession, killed by Mr. TOWNSEND on the " Columbia river, Sept. 26, 1834," the tail is considerably rounded, the lateral feathers being 7 twelfths shorter than the longest remaining, the middle feathers being lost. The tail is deep black, with a terminal band of ash-grey, half an inch in breadth. It is therefore probable, that when the tail is unworn, it is distinctly rounded, and tipped with grey.

THE PINNATED GROUSE.

TETRAO CUPIDO, *Linn.*

PLATE CCXCVI.—MALES AND FEMALE.

It has been my good fortune to study the habits of this species of Grouse, at a period when, in the district in which I resided, few other birds of any kind were more abundant. I allude to the lower parts of the States of Kentucky, Indiana, Illinois, and Missouri. Twenty-five years and more have elapsed since many of the notes to which I now recur were written, and at that period I little imagined that the observations which I recorded should ever be read by any other individuals than those composing my own family, all of whom participated in my admiration of the works of Nature.

The Barrens of Kentucky are by no means so sterile as they have sometimes been represented. Their local appellation, however, had so much deceived me, before I travelled over them, that I expected to find nothing but an undulated extent of rocky ground, destitute of vegetation, and perforated by numberless caverns. My ideas were soon corrected. I saw

the Barrens for the first time in the early days of June, and as I entered them from the skirts of an immense forest, I was surprised at the beauty of the prospect before me. Flowers without number, and vying with each other in their beautiful tints, sprung up amidst the luxuriant grass; the fields, the orchards, and the gardens of the settlers, presented an appearance of plenty, scarcely any where exceeded; the wild fruit-trees, having their branches interlaced with grape-vines, promised a rich harvest; and at every step I trod on ripe and fragrant strawberries. When I looked around, an oak knob rose here and there before me, a charming grove embellished a valley, gently sloping hills stretched out into the distance, while at hand the dark entrance of some cavern attracted my notice, or a bubbling spring gushing forth at my feet seemed to invite me to rest and refresh myself with its cooling waters. The timid deer snuffed the air, as it gracefully bounded off, the Wild Turkey led her young ones in silence among the tall herbage, and the bees bounded from flower to blossom. If I struck the stiff foliage of a black-jack oak, or rustled among the sumachs and brambles, perchance there fluttered before me in dismay the frightened Grouse and her cowering brood. The weather was extremely beautiful, and I thought that the Barrens must have been the parts from which Kentucky derived her name of the "Garden of the West!"

There it was, that, year after year, and each successive season, I studied the habits of the Pinnated Grouse. It was there that, before sunrise, or at the close of day, I heard its curious boomings, witnessed its obstinate battles, watched it during the progress of its courtships, noted its nest and eggs, and followed its young until, fully grown, they betook themselves to their winter quarters.

When I first removed to Kentucky, the Pinnated Grouse were so abundant, that they were held in no higher estimation as food than the most common flesh, and no "hunter of Kentucky" deigned to shoot them. They were, in fact, looked upon with more abhorrence than the Crows are at present in Massachusetts and Maine, on account of the mischief they committed among the fruit trees of the orchards during winter, when they fed on their buds, or while in the spring months they picked up the grain in the fields. The farmer's children, or those of his negroes, were employed to drive them away with rattles from morning to night, and also caught them in pens and traps of various kinds. In those days, during the winter, the Grouse would enter the farm-yard and feed with the poultry, alight on the houses, or walk in the very streets of the villages. I recollect having caught several in a stable at Henderson, where they had followed some Wild Turkeys. In the course of the same winter, a friend of mine, who was fond of practising rifle-shooting, killed upwards of forty in one morning, but

picked none of them up, so satiated with Grouse was he, as well as every member of his family. My own servants preferred the fattest flitch of bacon to their flesh, and not unfrequently laid them aside as unfit for cooking.

Such an account may appear strange to you, reader; but what will you think when I tell you, that, in that same country, where, twenty-five years ago, they could not have been sold at more than one cent a-piece, scarcely one is now to be found? The Grouse have abandoned the State of Kentucky, and removed (like the Indians) every season farther to the westward, to escape from the murderous white man. In the Eastern States, where some of these birds still exist, game-laws have been made for their protection during a certain part of the year, when, after all, few escape to breed the next season. To the westward you must go as far at least as the State of Illinois, before you meet with this species of Grouse, and there too, as formerly in Kentucky, they are decreasing at a rapid rate. The sportsman of the Eastern States now makes much ado to procure them, and will travel with friends and dogs, and all the paraphernalia of hunting, a hundred miles or more, to shoot at most a dozen brace in a fortnight; and when he returns successful to the city, the important results are communicated to all concerned. So rare have they become in the markets of Philadelphia, New York, and Boston, that they sell at from five to ten dollars the pair. An excellent friend of mine, resident in the city of New York, told me that he refused 100 dollars for ten brace, which he had shot on the Pocano mountains of Pennsylvania.

On the eastern declivities of our Atlantic coast, the districts in which the Pinnated Grouse are still to be met with, are some portions of the State of New Jersey, the "brushy" plains of Long Island, Martha's Vineyard, the Elizabeth Islands, Mount Desert Island in the State of Maine, and a certain tract of barreny country in the latter State, lying not far from the famed Mars Hill, where, however, they have been confounded with the Willow Grouse. In the three first places mentioned, notwithstanding the preventive laws now in force, they are killed without mercy by persons such as in England are called poachers, even while the female bird is in the act of sitting on her eggs. Excepting in the above named places, not a bird of the species is at present to be found, until you reach the lower parts of Kentucky, where, as I have told you before, a few still exist. In the State of Illinois, all the vast plains of the Missouri, those bordering the Arkansas river, and on the prairies of Opelousas, the Pinnated Grouse is still very abundant, and very easily procured.

As soon as the snows have melted away, and the first blades of grass issue from the earth, announcing the approach of spring, the Grouse, which had

congregated during the winter in great flocks, separate into parties of from twenty to fifty or more. Their love season commences, and a spot is pitched upon to which they daily resort until incubation is established. Inspired by love, the male birds, before the first glimpse of day lightens the horizon, fly swiftly and singly from their grassy beds, to meet, to challenge, and to fight the various rivals led by the same impulse to the arena. The male is at this season attired in his full dress, and enacts his part in a manner not surpassed in pomposity by any other bird. Imagine them assembled, to the number of twenty, by day-break, see them all strutting in the presence of each other, mark their consequential gestures, their looks of disdain, and their angry pride, as they pass each other. Their tails are spread out and inclined forwards, to meet the expanded feathers of their neck, which now, like stiffened frills, lie supported by the globular orange-coloured receptacles of air, from which their singular booming sounds proceed. Their wings, like those of the Turkey Cock, are stiffened and declined so as to rub and rustle on the ground, as the bird passes rapidly along. Their bodies are depressed towards the ground, the fire of their eyes evinces the pugnacious workings of the mind, their notes fill the air around, and at the very first answer from some coy female, the heated blood of the feathered warriors swells every vein, and presently the battle rages. Like Game Cocks they strike, and rise in the air to meet their assailants with greater advantage. Now many close in the encounter; feathers are seen whirling in the agitated air, or falling around them tinged with blood. The weaker begin to give way, and one after another seek refuge in the neighbouring bushes. The remaining few, greatly exhausted, maintain their ground, and withdraw slowly and proudly, as if each claimed the honours of victory. The vanquished and the victors then search for the females, who, believing each to have returned from the field in triumph, receive them with joy.

It not unfrequently happens that a male already mated is suddenly attacked by some disappointed rival, who unexpectedly pounces upon him after a flight of considerable length, having been attracted by the cacklings of the happy couple. The female invariably squats next to and almost under the breast of her lord, while he, always ready for action, throws himself on his daring antagonist, and chases him away never to return. Such is the moment which I have attempted to represent in the plate.

In such places in the Western country as I have described, the "Prairie Hen" is heard "booming" or "tooting" not only before break of day, but frequently at all hours from morning until sunset; but in districts where these birds have become wild in consequence of the continual interference of man, they are seldom heard after sunrise, sometimes their meetings are

noiseless, their battles are much less protracted, or of less frequent occurrence, and their beats or scratching grounds are more concealed. Many of the young males have battles even in autumn, when the females generally join, not to fight, but to conciliate them, in the manner of the Wild Turkeys.

The Pinnated Grouse forms its nest, according to the latitude of the place, between the beginning of April and the 25th of May. In Kentucky I have found it finished and containing a few eggs at the period first mentioned, but I think, taking the differences of seasons into consideration, the average period may be about the first of May. The nest, although carelessly formed of dry leaves and grasses, interwoven in a tolerably neat manner, is always carefully placed amidst the tall grass of some large tuft, in the open ground of the prairies, or at the foot of a small bush in the barren lands. The eggs are from eight to twelve, seldom more, and are larger than those of the *Tetrao umbellus*, although nearly of the same colour. The female sits upon them eighteen or nineteen days, and the moment the young have fairly disengaged themselves, leads them away from the nest, when the male ceases to be seen with her. As soon as autumn is fairly in, the different families associate together, and at the approach of winter I have seen packs composed of many hundred individuals.

When surprised, the young squat in the grass or weeds, so that it is almost impossible to find any of them. Once, while crossing a part of the barrens on my way homewards, my horse almost placed his foot on a covey that was in the path. I observed them, and instantly leaped to the ground; but notwithstanding all my endeavours, the cunning mother saved them by a single cluck. The little fellows rose on the wing for only a few yards, spread themselves all round, and kept themselves so close and quiet, that, although I spent much time in search for them, I could not discover one. I was much amused, however, by the arts the mother employed to induce me to leave the spot where they lay concealed, when perhaps I was actually treading on some of them.

This species never raises more than one brood in the season, unless the eggs have been destroyed, in which case the female immediately calls for her mate, and produces a second set of eggs, generally much smaller in number than the first. About the 1st of August, the young are as large as our little American Partridge, and are then most excellent eating. They do not acquire much strength of wing until the middle of October, and after that period they become daily more difficult to be approached. Their enemies are at this season very numerous, but the principal are the Polecat, the Racoon, the Weasel, the Wild Cat, and various Hawks.

The Pinnated Grouse is easily tamed, and easily kept. It also breeds in confinement, and I have often felt surprised that it has not been fairly domes-

ticated. While at Henderson, I purchased sixty alive, that were expressly caught for me within twelve miles of that village, and brought in a bag laid across the back of a horse. I cut the tips of their wings, and turned them loose in a garden and orchard about four acres in extent. Within a week they became tame enough to allow me to approach them without their being frightened. I supplied them with abundance of corn, and they fed besides on vegetables of various kinds. This was in the month of September, and almost all of them were young birds. In the course of the winter they became so gentle as to feed from the hand of my wife, and walked about the garden like so many tame fowls, mingling occasionally with the domestic poultry. I observed that at night each individual made choice of one of the heaps in which a cabbage had grown, and that they invariably placed their breast to the wind, whatever way it happened to blow. When spring returned, they strutted, "tooted," and fought, as if in the wilds where they had received their birth. Many laid eggs, and a good number of young ones made their appearance, but the Grouse at last proved so destructive to the young vegetables, tearing them up by the roots, that I ordered them to be killed. So brave were some of the male birds, that they never flinched in the presence of a large Turkey Cock, and now and then they would stand against a dunghill cock, for a pass or two, before they would run from him.

During very severe weather, I have known this species to roost at a considerable height on trees, but they generally prefer resting on the ground. I observed that for several nights in succession, many of these Grouse slept in a meadow not far distant from my house. This piece of ground was thickly covered with tall grass, and one dark night I thought of amusing myself by trying to catch them. I had a large seine, and took with me several negroes supplied with lanterns and long poles, with the latter of which they bore the net completely off the ground. We entered the meadow in the early part of the night, although it was so dark that without a light one could hardly have seen an object a yard distant, and spreading out the leaded end of the net, carried the other end forward by means of the poles at the height of a few feet. I had marked before dark a place in which a great number of the birds had alighted, and now ordered my men to proceed towards it. As the net passed over the first Grouse in the way, the alarmed bird flew directly towards the confining part of the angle, and almost at the same moment a great number of others arose, and, with much noise, followed the same direction. At a signal, the poles were laid flat on the ground, and we secured the prisoners, bagging some dozens. Repeating our experiment three times in succession, we met with equal success, but now we gave up the sport on account of the loud bursts of laughter from the negroes, who could no longer refrain. Leaving the net on the ground, we returned to the

house laden with spoil, but next evening not a Grouse was to be found in the meadow, although I am confident that several hundreds had escaped.

On the ground the Pinnated Grouse exhibits none of the elegance of manner observed in the Ruffed Grouse, but walks more like the Common Hen, although in a more erect attitude. If surprised, it rises at once with a moderate whirring sound of the wings; but if it happens to see you at a distance, and the place is clear, it instantly runs off with considerable speed, and stops at the first tuft of high grass or bunch of briar, when it squats, and remains until put up. In newly ploughed grounds I have seen them run with all their might, their wings partially expanded, until suddenly meeting with a large clod, they would stop, squat, and disappear in a moment. During the noontide hours, several may often be seen dusting themselves near each other, either on the ploughed fields or the dry sandy roads, and re-arranging their feathers in a moment, in the same manner as the Wild Turkey. Like the Common Fowls, they watch each other's motions, and if one has discovered a grasshopper, and is about to chase it, all the rest within sight of it either fly or run up to the place. When the mother of a brood is found with her young ones, she instantly ruffles up her feathers, and often looks as if she would fly at you; but this she never ventures to do, although she tries every art to decoy you from the place. On large branches of trees these birds walk with great ease, but on small ones they require the aid of their wings to enable them to walk steadily. They usually, if not always, roost singly within a few feet of each other, and on such little eminences as the ground affords. I have found them invariably fronting the wind, or the quarter from which it was to blow. It is only during the early age of the young birds that they sit on the ground in a circle.

The flight of the Prairie Hen is strong, regular, tolerably swift, and at times protracted to the distance of several miles. The whirring of its wings is less conspicuous than that of the Ruffed Grouse or "Pheasant" (*Tetrao umbellus*), and its flight is less rapid. It moves through the air with frequent beats, after which it sails with the wings bent downwards, balancing itself for a hundred yards or more, as if to watch the movements of its pursuer, for at this time they can easily be observed to look behind them as they proceed. They never rise when disturbed without uttering four or five distinct clucks, although at other times they fly off in silence. They are easily shot down by a calm sportsman, but are very apt to deceive a young hand. In the western country they rarely stand before the pointer, and I think the setter is a more profitable dog there. In the Eastern States, however, pointers, as I am informed, are principally employed. These birds rarely wait the approach of the sportsman, but often rise when he is at such a distance as to render it necessary for him to be very prompt in firing.

Unlike other species, they seldom pass over you, even when you surprise them, and if the country is wooded, they frequently alight on the highest branches of the tallest trees, where they are usually more accessible. If shot almost dead, they fall and turn round on the ground with great violence until life is extinct; but when less injured, they run with great celerity to some secluded place, where they remain so quiet and silent as to render it difficult to find them without a good dog. Their flesh is dark, and resembles that of the Red Grouse of Scotland, or the Spotted Grouse of North America.

The curious notes emitted in the love season are peculiar to the male. When the receptacles of air, which in form, colour, and size, resemble a small orange, are perfectly inflated, the bird lowers its head to the ground, opens its bill, and sends forth, as it were, the air contained in these bladders in distinctly separated notes, rolling one after another from loud to low, and producing a sound like that of a large muffled drum. This done, the bird immediately erects itself, refils its receptacles by inhalation, and again proceeds with its tootings. I frequently observed in those Prairie Hens which I had tamed at Henderson, that after producing the noise, the bags lost their rotundity, and assumed the appearance of a burst bladder, but that in a few seconds they were again inflated. Having caught one of the birds, I passed the point of a pin through each of its air-cells, the consequence of which was, that it was unable to toot any more. With another bird I performed the same operation on one only of the cells, and next morning it tooted with the sound one, although not so loudly as before, but could not inflate the one which had been punctured. The sound, in my opinion, cannot be heard at a much greater distance than a mile. All my endeavours to decoy this species, by imitating its curious sounds, were unsuccessful, although the Ruffed Grouse is easily deceived in this manner. As soon as the strutting and fighting are over, the collapsed bladders are concealed by the feathers of the ruff, and during autumn and winter are much reduced in size. These birds, indeed, seldom, if ever, meet in groups on the scratching grounds after incubation has taken place; at all events, I have never seen them fight after that period, for, like the Wild Turkeys, after spending a few weeks apart to recover their strength, they gradually unite, and as soon as the young are grown up, individuals of both sexes mix with the latter and continue in company till spring. The young males exhibit the bladders and elongated feathers of the neck before the first winter, and by the next spring have attained maturity, although, as in many other species, they increase in size and beauty for several years.

As I have never shot these birds in the Eastern States, and therefore cannot speak from experience of the sport which they afford, I here introduce a very interesting letter from a well known sportsman, my friend

DAVID ECKLEY, Esq., residing at Boston, who is in the habit of shooting them annually.

"Dear Sir,—I have the pleasure of sending you a brace of Grouse from Martha's Vineyard, one of the Elizabeth Islands, which for many years past I have been accustomed to visit annually, for the purpose of enjoying the sport of shooting these fine birds. Nashawenna is the only other island of the group on which they are found. This, however, is a sort of preserve, as the island being small and the birds few, strangers are not permitted to shoot without the consent of the owners of the soil. It would be difficult to assign a reason why they are found upon the islands above named, and not upon others, particularly Nashuan, which, being large, well wooded, and abounding in feed, seems quite as favourable to the peculiar habits of the birds.

"Fifteen or twenty years ago, I know from my own experience, it was a common thing to see as many birds in a day as we now see in a week; but whilst they have grown scarcer, our knowledge of the ground has become more extended, so that the result of a few weeks' residence of a party of three, with which I usually take the field, is ten brace of birds. Packs of twenty to fifty are now no longer seen, and the numbers have so diminished, in consequence of a more general knowledge of their value, the price in Boston market being five dollars per brace, that we rarely see of late more than ten or twelve collected together. It is often observed, however, that there is very little encouragement to be derived from the circumstance of falling in with a large number, and that the greater the pack, the more likely they are to elude the vigilance of the sportsman; though it must be acknowledged that it is a most exhilarating yet tantalizing sight, to start a large pack out of gunshot, to watch them as their wings glisten in the sun, alternately sailing, fluttering, and skimming over the undulating ground, apparently just about alighting, but exerting their strength and fluttering on once more, some old stager of the pack leading them beyond an intervening swell, out of harm's way, beyond which all is conjecture as to the extent or the direction of their flight. In such a case, it is best to follow on as quick and as straight as possible, keeping the eye fixed upon the tree or bush, which served to mark them, and after having proceeded a reasonable distance in the direction which they have flown, if a 'clear' or 'cutting place' should lie in the course, the birds may be confidently expected to have alighted there. They never in fact settle down where the woods are thick, or the bushes close and tangled, but invariably in some open space, and often in the roads; neither do they start from thick foliage or briary places, but seek at once to disengage themselves from all embarrassment to their flight, by attaining the nearest open space, thus offering to the sportsman the

fairest mark of all game birds. It frequently happens that not one is killed on the first flight of a pack, as they are often very unexpectedly started, but on approaching them a second time, with greater caution, success is more likely to follow, particularly if they have become scattered.

"Towards the middle of November, they have attained their average weight of nearly two pounds each, and nothing can be fuller, richer, or more game-like than their plumage. At this time of year, however, in sportsman's phrase, they will seldom 'lie to the dog,' but are easily started by every sound they hear. Even loud talking alarms them; for which reason, a high wind, which drowns the approach of danger, is the most desirable weather. A calm drizzly day is also favourable; for the birds being less likely to be disturbed by the glare of objects, venture into the old rye fields, the low edges of the wood, and the bushy pastures, to feed.

"It is seldom that we start a bird a second time in the exact spot where he has been seen to hover down, for no sooner do they alight than they run, and frequently into thick cover, from which they often attempt in vain to disentangle themselves. A dog is then necessary to scent the bird, which alternately runs and squats, until, being hard pressed, it rises, and frequently with a sound which resembles the syllables *coo, coo, coo,* uttered with rapidity. One good dog is better than two, and though sufficient, is absolutely necessary, for besides the enjoyment of observing his action generally, his challenging cheers and his pointing prepares you. But more than all, a dog is required in recovering those which are winged or not fatally wounded, which, but for his tracking them, would be entirely lost.

"The barberry, which abounds in many parts of Martha's Vineyard, is the principal food of the Grouse, particularly such as grow on low bushes, near the ground, and easily reached by the birds. They also feed on the boxberry or partridge-berry, the highland and lowland cranberry, rose-buds, pine and alder buds, acorns, &c. In summer, when young, they feed on the more succulent berries.

"We frequently meet with the remains of such as have been destroyed in various ways, but more particularly by the domestic cat, which prowls the woods in a wild state, and which often receives a very unwelcome salute for the mischief it does. Owls, Hawks, and Skunks also do their part towards the destruction of these valuable but defenceless birds. In these ways they are thinned off much more effectually than by the sportsman's gun. They frequent no particular soil, and, like all other hunting, wherever the feed is, there is the likeliest place for the game. In addition to this rule as a guide, we look for their fresh tracks, among the sandy barberry hillocks, and along the numerous paths which intersect that remarkable part of the Vineyard called Tisbury Plain. Into this, should the birds fly from the edges, as they

sometimes do, it is almost impossible to start them a second time, as there are no trees or large objects to mark their flight. Being mostly covered with scrub oaks of a uniform height, with occasional mossy hollows, it affords them a place of refuge, into which they fly for protection, but from which they soon emerge, when the danger is past, to their more favourite haunts.

"I have only seen them in the month of November, but I am told that in the spring of the year, previous to the season of incubation, they congregate in large companies, in particular places, where they hold a grand tournament, fighting with great desperation, and doing one another all the mischief possible. In these chosen spots, it is said the cunning natives were accustomed to strew ashes, and rush upon them with sticks when blinded by the dust which they had raised. In later times, the custom of baiting them has proved more destructive to the species. In this way, very great but very unsportsman-like shots have often been made. Another practice has been that of stealing upon them unawares, guided by that peculiar sound for which they are remarkable in the spring of the year, called 'tooting.' By these and other means, to which I have adverted, the birds were diminishing in numbers from year to year; but it is to be hoped that they will revive again, as they are now protected by an act of the State of Massachusetts, passed in 1831, which limits the time of shooting them to the months of November and December, and imposes a penalty of ten dollars each bird, for all that are killed, except in those two months."

In the western country, at the approach of winter, these birds frequent the tops of the sumach bushes, to feed on their seeds, often in such numbers that I have seen them bent by their weight; and I have counted more than fifty on a single apple tree, the buds of which they entirely destroyed in a few hours. They also alight on high forest trees on the margins of large rivers, such as the Mississippi, to eat grapes and the berries and leaves of the parasitical mistletoe. During several weeks which I spent on the banks of the Mississippi, above the mouth of the Ohio, I often observed flocks of them flying to and fro across the broad stream, alighting at once on the highest trees with as much ease as any other bird. They were then so abundant that the Indians, with whom I was in company, killed them with arrows whenever they chanced to alight on the ground or low bushes.

During the sowing season, their visits to the wheat and corn fields are productive of considerable damage. They are fond of grasshoppers, and pursue these insects as chickens are wont to do, sometimes to a distance of thirty or forty yards. They drink water like the common fowl when at liberty, and like all other species of this family, are fond of dusting themselves in the paths, or among the earth of the fields.

I have often observed them carry their tails in the manner of the common

hen. During the first years of my residence at Henderson, in severe winters, the number of Grouse of this species was greatly augmented by large flocks of them that evidently came from Indiana, Illinois, and even from the western side of the Mississippi. They retired at the approach of spring, no doubt to escape from the persecution of man.

This species is abundant on all the prairies of Texas, and ranges along the shores of the Missouri as far as the head waters of that stream ; but none have been observed on the Rocky Mountains, or on the plains of the Columbia river. The eggs measure two inches in length, by rather more than one and a half in breadth, and are nearly equally rounded at both ends. All the birds of this family that alight on trees and roost there, have the toes either destitute of feathers or partially naked. On the contrary, those which keep constantly on the ground, have these parts thickly feathered to the claws, more especially during winter. The latter birds roost standing in an almost erect posture, sometimes singly, sometimes in the manner of Partridges, that is, with their tails together and their heads outward. Those which roost on trees *lie down* on the branches, and perhaps do not need feathers on their toes, as these parts receive the warmth from their body while they are in this crouching posture, which they can enjoy in continuance, being less liable to be disturbed by quadrupeds than those that repose on the ground, and sleep erect, in order to be ready to fly off when surprised or approached at night.

PINNATED GROUSE, *Tetrao Cupido*, Wils. Amer. Orn., vol. iii. p. 104.
TETRAO CUPIDO, Bonap. Syn., p. 126.
PINNATED GROUSE, Nutt. Man., vol. i. p. 662.
PINNATED GROUSE, *Tetrao Cupido*, Aud. Orn. Biog., vol. ii. p. 490; vol. v. p. 559.

Male, 18, 27½.

Abundant from Texas throughout all the western prairies, to very high up the Missouri, Kentucky, Illinois, and Ohio. Almost extirpated in the Middle and Eastern Districts. Resident.

Adult Male.

Bill short, robust; upper mandible with the dorsal outline curved, the edges overlapping, the tip declinate and rounded ; lower mandible convex, broad, with the tip rounded. Nostrils basal, roundish, concealed by the feathers. Head small, neck rather long, body bulky. Feet of ordinary length ; tarsus short, feathered ; toes covered above with numerous short scutella, marginated and pectinated ; hind toe extremely short, two lateral equal, middle toe much longer ; claws of ordinary length, strong, arched, rather obtuse, concave beneath.

Plumage compact, the feathers generally broad and rounded ; those of the head and neck narrow, and proportionally shorter, excepting those of the crown, which are elongated. Two tufts of lanceolate, elongated feathers on the sides of the neck, under which is an oblong bare space on either side capable of being inflated. Lower tibial and tarsal feathers short, soft and blended. Wings short and curved, the primaries strong and narrow ; fourth longest, third and fifth nearly equal, second longer than sixth, first much shorter. Tail very short, much rounded, sloping on both sides, of eighteen broad rounded feathers.

Bill dusky, paler beneath. Iris brown. Toes dull yellow, claws greyish-brown, the general colour of the upper parts is blackish-brown, transversely marked with broad undulating bands of light yellowish-red ; the wing-coverts and secondaries of a lighter brown, tinged with grey, and barred with paler red, the latter only on the outer webs ; primary quills greyish-brown, with black shafts, and spots of pale reddish on the outer webs, excepting towards the end. Tail dark greyish-brown, narrowly tipped with dull white, the two middle feathers mottled with brownish-red. Space from the bill to the eye, a band from the lower mandible over the cheek and the throat, pale yellowish-red or cream colour ; a band of blackish-brown under the eye, including the ear-coverts, and another about an inch and a half long on the side of the throat. Supra-ocular membrane scarlet ; bare skin of the sounding-bladder dusky orange. The long feathers of the cervical tufts are dark brown on the outer webs, pale yellowish-red and margined with dusky on the inner, excepting the lowest, which are all brownish-black. The lower parts are marked with large transverse curved bands of greyish-brown and pale yellowish-grey, the tints deeper on the anterior parts and under the wings. Under tail-coverts arranged in three sets, the middle feathers convex, involute, white, with two concealed brown spots ; the lateral larger, of the same form, abrupt, variegated with dusky red and white, the extremity of the latter colour, but with a very narrow terminal margin of black. The tibial and tarsal feathers are grey, obscurely and minutely banded with yellowish-brown.

Length 18 inches, extent of wings 27½ ; bill along the back $\frac{7}{12}$; along the edge $\frac{11}{12}$; tarsus 1½ ; weight 1 lb. 13 oz.

Adult Female.

The female is considerably smaller, and wants the crest, cervical tufts and air-bags, but in other respects resembles the male.

The Tiger Lily.

Lilium superbum, *Willd.*, Sp. Pl., vol. ii. p. 88. *Pursh*, Fl. Amer. Sept., vol. i. p. 280 —Hexandria Monogynia, *Linn.*—Liliacæ, *Juss.*

This beautiful plant, which grows in swamps and moist copses, in the Northern and Eastern States, as far as Virginia, as well as in the western prairies, attains a height of four or five feet, and makes a splendid appearance with its numerous large drooping flowers, which sometimes amount to twenty or even thirty on a single stem. The leaves are linear-lanceolate, three-nerved, smooth, the lower verticillate, the upper scattered. The flowers are orange-yellow, spotted with black on their upper surface, the petals revolute.

PHEASANT-TAILED GROUSE.—COCK OF THE PLAINS.

Tetrao urophasianus, *Bonap.*

PLATE CCXCVII.—Male and Female.

Although the Cock of the Plains has long been known to exist within the limits of the United States, the rugged and desolate nature of the regions inhabited by it has hitherto limited our knowledge of its habits to the cursory observations made by the few intrepid travellers who, urged by their zeal in the cause of science, have ventured to explore the great ridge of mountains that separate our western prairies from the rich valleys bordering on the Pacific Ocean. Two of these travellers, my friends Mr. Townsend and Mr. Nuttall, have favoured me with the following particulars respecting this very remarkable species, the history of which, not being myself personally acquainted with it, I shall endeavour to complete by adding some notes of Mr. Douglas.

"*Tetrao Urophasianus*, *Pi-imsh* of the Wallah Wallah Indians, *Mak-esh-too-yoo* of the Nezpercee Indians, is first met with about fifty miles west of the Black Hills. We lose sight of it in pursuing the route by the Snake

Cock of the Plains.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

1. Male. 2. Female.

Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

river until we reach Wallah Wallah, on the banks of the Columbia, near the mouth of Lewis river. This bird is only found on the plains which produce the worm-wood (*Artemisia*), on which plant it feeds, in consequence of which the flesh is so bitter that it is rejected as food. It is very unsuspicious, and easily approached, rarely flies unless hard pressed, runs before you at the distance of a few feet, clucking like the common hen, often runs under the horses of travellers when disturbed, rises very clumsily, but when once started, flies with rapidity to a great distance, and has the sailing motion of the Pinnated Grouse. In the autumn they frequent the branches of the Columbia river, where they feed on a narrow-leaved plant. At this time they are considered good food by the natives, who take great quantities of them in nets. J. K. TOWNSEND."

" On the north branch of the Platte (Larimie's Fork) we begin to meet with the *Tetrao Urophasianus* in considerable numbers, always on the ground in small flocks or pairs, by no means shy, but when too nearly approached rising with a strong whirring noise, and uttering at the same time a rather loud but very short alarmed guttural cackle. The notes of the female indeed, at such times, almost resemble those of a common hen. The old male, when killed by Mr. TOWNSEND, turned out so different from the imperfect and unadult specimens figured, that we could scarcely recognise it for the same species. Its size seemed to promise a fine meal, but appearances are often deceitful, and after being nicely broiled, it truly deserved to be treated like the well prepared plate of cucumbers, proving so very bitter, though delicately white, that our hungry hunters could scarcely swallow more than a morsel. In short, it feeds by choice on the bitterest shrubs of these sterile plains, and under-wood (several species of *Artemisia*) is literally its favourite food. Of its nest and breeding habits we ascertained nothing, but cannot for a moment hesitate to say that some mistake must exist in either asserting or supposing that a bird so constantly confined to the open desert plains, could retire to the shady forests and dark alluvial thickets of the Columbia to rear its young apart from their usual food and habits. We met with this very fine Grouse near to the plains around Wallah Wallah, on the south side of the Columbia, but never saw it either in the forests of the Columbia or the Wahlamet, nor, so far as we know, has it ever been found on the coast of California, or in the interior of Mexico. T. NUTTALL."

Mr. DOUGLAS's statement is as follows :—" The flight of these birds is slow, unsteady, and affords but little amusement to the sportsman. From the disproportionately small, convex, thin-quilled wing,—so thin that a vacant space half as broad as a quill appears between each,—the flight may be said to be a sort of fluttering, more than anything else ; the bird giving two or three claps of the wings in quick succession, at the same time hurriedly rising ;

then shooting or floating, swinging from side to side, gradually falling, and thus producing a clapping, whirring sound. When started, the voice is *cuck, cuck, cuck*, like the Common Pheasant. They pair in March and April. Small eminences on the banks of streams are the places usually selected for celebrating the weddings, the time generally about sunrise. The wings of the male are lowered, buzzing on the ground; the tail, spread like a fan, somewhat erect; the bare yellow œsophagus inflated to a prodigious size,—fully half as large as his body, and, from its soft, membranous substance, being well contrasted with the scale-like feathers below it on the breast, and the flexile, silky feathers on the neck, which on these occasions stand erect. In this grotesque form he displays, in the presence of his intended mate, a variety of attitudes. His love-song is a confused, grating, but not offensively disagreeable tone,—something that we can imitate, but have a difficulty in expressing—*Hurr-hurr-hurr-r-r-r-hoo*, ending in a deep, hollow tone, not unlike the sound produced by blowing into a large reed. Nest on the ground, under the shade of *Purshia* and *Artemisia*, or near streams, among *Phalaris arundinacea*, carefully constructed of dry grass and slender twigs. Eggs, from thirteen to seventeen, about the size of those of a common fowl, of a wood-brown colour, with irregular chocolate blotches on the thick end. Period of incubation twenty-one to twenty-two days. The young leave the nest a few hours after they are hatched. In the summer and autumn months these birds are seen in small troops, and in winter and spring in flocks of several hundreds. Plentiful throughout the barren, arid plains of the river Columbia; also in the interior of North California. They do not exist on the banks of the river Missouri; nor have they been seen in any place east of the Rocky Mountains."

Tetrao urophasianus, Bonap. Amer. Orn.; vol. iii. pl. 21.
Tetrao (Centrocercus) urophasianus, *Cock of the Plains*, Swains. & Rich. F Bor. Amer., vol. ii. p. 358.
Cock of the Plains, Nutt. Man. vol. i. p. 666.
Cock of the Plains, *Tetrao urophasianellus*, Aud. Orn. Biog., vol. iv. p. 503.

Male, 30, 36. Female, 22.

Rocky Mountains and Columbia river, northward. Once seen on the Missouri. Abundant. Partially migratory from high to low grounds in autumn and winter.

Adult Male.

Bill shortish, strong, somewhat compressed; upper mandible with the dorsal line arcuato-declinate, the ridge flattened at the base and narrowed on account of the great extent of the nasal sinus, which is feathered, the sides convex toward the end, the edges inflected, the tip narrow and rounded;

lower mandible with the angle of moderate length and width, the dorsal line ascending and convex, the edges sharp and inflected, the tip obtuse, but like the upper thin edged. Head rather small, oblong; neck of moderate length; body full. Feet rather short, stout; tarsus roundish, feathered, bare and reticulated behind. Toes of moderate size, covered above with numerous scutella, laterally pectinated with slender projecting flattened scales; first toe small, second a little shorter than fourth, third much longer. Claws stout, slightly arched, moderately compressed, obtuse.

Plumage dense, soft, rather compact, the feathers in general broadly ovate; those on the head very short, on the sides of the neck anteriorly at its lower part and across the fore part of the breast, small, very short, broad, stiff, and imbricated like scales; higher up on the sides of the neck a tuft of feathers having their shafts elongated, bristle-like, and terminated by a few filaments. On each side of the lower part of the neck in front is a large bare space capable of being inflated into a hemispherical sac. On the fore part of the breast the feathers, although long, have the shaft thickened and elongated; the rest of the feathers are of ordinary structure. Wings rather short, concave, much rounded, the primaries stiff and very narrow, so as to leave a large interval when the wing is extended; the third, fourth, and fifth quills longest. Tail long, graduated, of twenty stiffish feathers, each tapering to a very elongated point.

Bill black; iris light hazel; superciliary membrane vermilion; toes brownish-grey; claws brownish-black. The upper parts are light yellowish-brown, variegated with brownish-black and yellowish-white; the feathers of the head and neck transversely barred, of the back barred, undulated and dotted, with a whitish longitudinal line along the shafts of the wing-feathers. The quills chocolate-brown, their outer webs and part of their inner margins mottled with yellowish-white. Tail with about ten bands of yellowish-white on the outer webs, which are otherwise variegated like the back, the inner webs nearly plain brown. The throat and fore part of neck whitish, longitudinally spotted with brownish-black; a narrow white band across the throat; the sides of the neck and fore part of the breast white; the elongated shafts of the tuft-feathers black; the sides variegated like the back, with a broad line of white along the middle of each feather; the axillars and lower wing-coverts pure white; the hind part of the breast and the abdomen brownish-black; the sides of the rump like the back; the lower tail-coverts brownish-black, largely tipped with white; the feathers of the tibiæ and tarsi pale brownish-grey, faintly barred with brown.

Length to end of tail 30 inches; extent of wings 36; wing from flexure 13; tail 12, shortest feathers 7; bill along the ridge $1\frac{6}{12}$, along the edge of lower mandible $1\frac{4}{12}$; tarsus $2\frac{1}{2}$; hind toe $\frac{1}{2}$, its claw $\frac{4}{12}$; middle toe $2\frac{1}{4}$, its claw $\frac{6}{12}$.

Adult Female.

The female is much smaller than the male, and differs in being destitute of the bare skin on the fore neck, in having the superciliary membranes smaller, the plumage entirely of ordinary texture; the tail less elongated, with the feathers less narrow and ending in a rounded point. All the upper parts, fore neck, and sides are variegated with brownish-black, yellowish grey and whitish, disposed nearly as in the male; the throat whitish, the fore part of the breast white, the middle part brownish-black, the legs and tarsi as in the male, as are the quills; the tail-feathers mottled like the back and tipped with white.

Length to end of tail 22 inches; wing from flexure $10\frac{1}{2}$; tail $7\frac{3}{4}$; bill along the ridge $1\frac{4}{12}$; tarsus $1\frac{10\frac{1}{2}}{12}$; middle toe $1\frac{8\frac{1}{2}}{12}$, its claw $\frac{6}{12}$.

The size of this species has been exaggerated, it having been by some compared to the Turkey, and by others to the Great Wood Grouse of Europe, *Tetrao urogallus*, whereas, in fact, it seems not much to exceed *Tetrao hybridus*. In some individuals, as I am informed by Mr. TOWNSEND, the hair-like shafts of the feathers on the sides of the neck are considerably longer than in my figure of the male.

SHARP-TAILED GROUSE.

TETRAO PHASIANELLUS, *Linn.*

PLATE CCXCVIII.—MALE AND FEMALE.

This is another species of our birds with the habits of which I am entirely unacquainted. Dr. RICHARDSON'S account of it is as follows:—"The northern limit of the range of the Sharp-tailed Grouse is Great Slave Lake, in the sixty-first parallel; and its most southern recorded station is in latitude 41°, on the Missouri. It abounds on the outskirts of the Saskatchewan plains, and is found throughout the woody districts of the Fur Countries, haunting open glades or low thickets on the borders of lakes, particularly in the neighbourhood of the trading paths, where the forests have been partially cleared. In winter it perches generally on trees, in summer is much on the ground; in both seasons assembling in coveys of from ten to

Sharp-tailed Grouse.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

1. Male 2. Female.

Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

sixteen. Early in spring, a family of these birds select a level spot, whereon they meet every morning, and run round in a circle of fifteen or twenty feet in diameter, so that the grass is worn quite bare. When any one approaches the circle, the birds squat close to the ground, but in a short time stretch out their necks to survey the intruder; and, if they are not scared by a nearer advance, soon resume their circular course, some running to the right, others to the left, meeting and crossing each other. These "Partridge dances" last for a month or more, or until the hens begin to hatch. When the Sharp-tailed Grouse are put up, they rise with the usual whirring noise, and alight again at the distance of a few hundred yards, either on the ground or on the upper branches of a tree. Before the cock quits his perch, he utters repeatedly the cry of *cuck, cuck, cuck.* In winter they roost in the snow like the Willow Grouse, and they can make their way through the loose wreaths with ease. They feed on the buds and sprouts of the *Betula glandulosa*, of various willows, and of the aspen and larch; and in autumn on berries. Mr. HUTCHINS says that the hen lays thirteen white eggs, with coloured spots, early in June; the nest being placed on the ground and formed of grass, lined with feathers."

Mr. TOWNSEND informs me that while crossing the north branch of the Platte (Larimie's Fork), he found this species breeding, and that as an article of food it proved to be a very well-flavoured and plump bird, considerably superior to any of the other large species that occur in the United States.

TETRAO PHASIANELLUS, Bonap. Amer. Orn., vol. iii. p. 37.

TETRAO PHASIANELLUS, Bonap. Syn., p. 127.

TETRAO (CENTROCERUS) PHASIANELLUS, SHARP-TAILED GROUSE, Swains. and Rich F. Bor. Amer., vol. ii. p. 361.

SHARP-TAILED GROUSE, Nutt. Man., vol. i. p. 669.

SHARP-TAILED GROUSE, *Tetrao Phasianellus*, Aud. Orn. Biog., vol. iv. p. 569.

Male, 17½, 23.

Missouri, lat. 41°, to Slave Lake, lat. 61°. Rocky Mountains. Abundant on the Saskatchewan Plains. Accidental in the northern parts of Illinois. Resident.

Adult Male.

Bill short, strong, as broad as high; upper mandible with the dorsal line arcuato-declinate, the ridge narrow at the base on account of the great extent of the nasal sinus, which is feathered, the sides convex toward the end, the edges overlapping and thin, the tip declinate and blunt, but thin-edged; lower mandible with the angle of moderate length and width, the dorsal line ascending and convex, the edges sharp and inclinate, the tip obtuse.

Head rather small, oblong ; neck of moderate length ; body full. Feet rather short, stout; tarsus roundish, feathered, bare, and reticulated behind. Toes of moderate size, with numerous scutella above, but covered over at the base by the hair-like feathers which grow from the sides and the intervening basal membranes, laterally pectinate with long, slender, projecting, flattened scales ; first toe small, second a little longer than fourth, third much longer. Claws slender, arched, moderately compressed, rather obtuse ; that of the third toe with the inner edge dilated.

Plumage dense, soft, rather compact, the feathers in general broadly ovate ; those on the head and upper part of the neck short, but some on the upper and hind part of the former elongated and forming a slight crest. There is a papillate coloured membrane over the eye, as in the other species ; and on each side of the neck is a large bare space, concealed by the plumage, which I have no doubt is inflated, as in *Tetrao Cupido* and *T. Urophasianus*, during the love season. Wings rather short, concave, much rounded ; the primaries stiff and very narrow, so as to leave large intervals when the wing is extended ; the third quill longest, the fourth next, the second shorter than the fifth, the sixth longer than the first. Tail short, much graduated, of sixteen feathers, of which the lateral are three inches shorter than the central ; all the feathers are more or less concave, excepting the two middle worn along the inner edge, obliquely and abruptly terminated, the two middle projecting an inch beyond the next.

Bill dusky above, brown beneath ; iris light hazel ; superciliary membrane vermilion ; toes brownish-grey, claws brownish-black. The upper parts are variegated with light red or brownish-orange, brownish-black and white; the black occupying the central part of the feathers, the light red forming angular processes from the margin, generally dotted with black, and a lighter bar near the end ; the white being in terminal, triangular, or guttiform spots on the scapulars and wing-coverts. The alula, primary coverts, secondary coverts and quills are greyish-brown, the coverts spotted and tipped with white ; the primaries with white spots on the outer web, the inner tipped with white, as are all the secondaries, of which the outer have two bars of white spots, and the inner are coloured like the back. The tail is white, at the base variegated, and the two middle feathers like the back. Loral space, and a line behind the eye, white ; a dusky streak beneath the eye, succeeded by a light coloured one. The throat is reddish-white, with some dusky spots ; the fore part and sides of the neck barred with dusky and reddish-white ; on the lower part of the neck and fore part of the breast, the dusky bars become first curved, and then arrow-shaped, and so continue narrowing on the hind part of the breast, and part of the sides, of which the upper portion is barred ; the abdomen, lower tail-coverts, axillar feathers,

and most of the lower wing-coverts, white. The hair-like feathers of the tarsi are light brownish-grey, faintly barred with greyish-white.

Length to end of tail 17½ inches, to end of wings 14, to end of claws 17, extent of wings 23; wing from flexure 8¼, tail 4½; bill along the ridge $\frac{10\frac{1}{2}}{12}$; along the edge of lower mandible $1\frac{1\frac{1}{2}}{12}$; tarsus $1\frac{7\frac{1}{2}}{12}$; hind toe $\frac{6}{12}$, its claw $\frac{6}{12}$; middle toe $1\frac{7\frac{1}{2}}{12}$, its claw $\frac{7}{12}$.

Adult Female.

The female is considerably smaller, but is coloured like the male, the tints being duller.

Genus II.—LAGOPUS. PTARMIGAN.

Bill short, robust; upper mandible with its dorsal outline decurved, the ridge indistinct and rounded, the sides convex, the edges overlapping, the tip declinate, thin-edged, rounded; lower mandible with the angle of moderate length and rounded, the dorsal line convex, the sides rounded, the edges a little inclinate; the tip rounded; nasal sinuses large and covered with feathers, leaving the ridge narrow between them. Nostrils basal, roundish, concealed by the feathers. Head small, ovate; neck rather long; body bulky. Feet rather short, stout; tarsus feathered, as are the toes, which have two or three terminal scutella; hind toe extremely short, lateral toes equal. Claws slightly arched, depressed, thin-edged, rounded. Plumage full and compact, the feathers rounded. Wings short, convex, the primaries strong, narrow, tapering, the third longest, the fourth and second little shorter. Tail short, nearly even, of more than twelve broad feathers.

WILLOW PTARMIGAN.—WILLOW GROUSE.

LAGOPUS ALBUS, *Gmel.*

PLATE CCXCIX.—MALE, FEMALE, AND YOUNG.

Although I have not seen this beautiful bird within the limits of the United States, I feel assured that it exists in the State of Maine, as well as in the northern districts bordering on the great lakes. THEODORE LINCOLN, Esq., of Dennisville, in Maine, shot seven one day, not many miles from that village; and the hunter who guided me to the breeding-grounds of the Canada Grouse assured me that he also knew where the "Red-necked Partridge" was to be found. The places which he described as frequented by them, seemed to bear as near a resemblance to those in which I found the species in Labrador and Newfoundland, as the difference of latitude and vegetation could admit. I have also seen several skins of individuals that were killed near Lake Michigan.

The Willow Grouse differs in its habits from the Canada Grouse in several remarkable circumstances. In the first place, neither myself nor any of my party ever found the former solitary or single. The males were always in the immediate vicinity of the nest while the females were sitting, and accompanied them and the young from the time the latter were hatched until they were full-grown; and whenever we met with them, we observed that the males and the females manifested the strongest attachment towards each other, as well as towards their young. In fact, so much was this the case, that when a covey happened to come in our way, the parents would fly directly towards us with so much boldness, that some were actually killed on the wing with the rods of our guns, as they flew about in the agonies of rage and despair, with all their feathers raised and ruffled. In the mean time, the little ones dispersed and made off through the deep moss and tangled creeping plants with great rapidity, squatting and keeping close to the ground, when it became extremely difficult to find them. This is the only American species of Grouse I am acquainted with that possesses these habits; in all others found in the United States, the male not only leaves the female as soon as incubation has commenced, but both fly from man and urge their young to do the same from their earliest age.

The Willow Ptarmigan, moreover, join their broods whenever an opportunity offers, and we found flocks of old and young, in which the latter were

Willow Ptarmigan.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

1. Male. 2. Female & Young.

Lith.ª Printed & Col.ª by J. T. Bowen. Phila.ª

of very different sizes. This species rarely if ever alights on bushes or trees after being fully grown, and appears to resort at all times by preference to the ground, living among the naked rocks of the open morasses.

The young birds do not acquire their full summer plumage before they are two years old. Many of these middle-aged birds, as I would call them, which our party procured early in the month of July, differed greatly from the older birds, which had their broods then quite small. They were much lighter in colour, their tails were shorter, and they weighed less, but afforded much better eating. Some of them had young, but their broods were much smaller in point of number, seldom exceeding four or five, while the old birds frequently had a dozen or more.

The flight of the Willow Grouse resembles that of the Red Grouse of Scotland, being regular, swift, and on occasion protracted to a very great distance. They have no whirring sound of their wings, even when put up by sudden surprise. Whenever we found a pair without young, they were extremely shy, and would fly from one hill to another often at a great distance. If pursued, they would be seen standing erect, and boldly watching our approach, until we got to the distance of a few hundred yards from them, when they would run from the naked rocks into the moss, and there squat so close, that unless one of the party happened to walk almost over them, they remained unseen, and could not be raised. When discovered and put up, they were easily shot, on account of the beautiful regularity of their flight. In rising from the ground, they utter a loud and quickly repeated chuck, which is continued for eight or ten yards.

Young birds shot in Newfoundland, on the 11th of August, weighed 6¼ ounces, and were fully fledged. Their primaries were of a sullied white, but their legs were not closely covered with hair-like feathers, as in the old birds. Although this species breeds in the districts inhabited by the Canada Grouse, it never enters the thickets to which the latter resorts, but always remains in the open grounds.

One day, while in search of young Wild Geese, in a large, oozy, and miry flat, covered with a floating bed of tangled herbage, we were much surprised at finding there several Willow Grouse. They were extremely shy, and flew from one part of the marsh to another. We procured with great difficulty two, which proved to be barren females.

To give you an idea of the difficulties we had occasionally to encounter, in our endeavours to procure such birds as breed in that country, it will suffice to say, that one of us was so mired in the flat just mentioned, that it was with extreme difficulty another of us succeeded in extricating him, to the great danger of being himself swamped, in which case we must all have perished, had no aid arrived. We were completely smeared with black

mud, and so fatigued, that when we returned, we found it impossible to proceed more than a few yards before we were forced to sit down on the dangerous sward, which at every step shook for a considerable space around, so that we were obliged to keep at a distance from each other, and move many yards apart, constantly fearing that the least increase of weight would have burst the thin layer that supported us, and sent us into a depth from which we could not have been extricated. But once out of the bog, we were delighted with the success of our enterprise, and as we refreshed ourselves from our scanty stores, when we had reached the rocky shores of the sea, we laughed heartily at what had happened, although only a few hours before it was considered a most serious accident.

As I am speaking of fowling in Labrador, allow me to relate an incident connected with the Willow Grouse. Among our crew was a sailor, who was somewhat of a wag. He was a "man-of-war's-man," and had seen a good deal of service in our navy, an expert sailor, perhaps the best diver I have seen, always willing to work hard, and always full of fun. This sailor and another had the rowing of our gig on an excursion after Grouse and other wild birds. THOMAS LINCOLN and my son JOHN WOODHOUSE managed the boat. The gig having landed on the main, the sailors, who had guns, went one way, and the young travellers another. They all returned, as was previously agreed upon, at the same hour, and produced the birds which they had procured. The sailors had none, and were laughed at. While rowing towards the Ripley, we heard the cries of birds as if in the air; the rowing ceased, but nothing could be seen, and we proceeded. Again the sounds of birds were distinctly heard, but again none could be seen, and what seemed strange was, that they were heard only at each pull of the oars. The young men taxed the tar with producing the noises, as they saw him as if employed in doing so with his mouth; however, the thing still remained a mystery. Some time after we had got on board, the provision basket was called for, and was produced by Master BILL, who, grinning from ear to ear, drew out of it two fine old Grouse, and a whole covey of young ones, in all the exultation of one who had outwitted what he called his betters.

While at the harbour of Bras d'Or, I was told by persons who had resided in the country for many years, that, during the winter, when the snow covers the ground, and the Grouse are obliged to scratch through it, in order to get at the mosses and lichens, they are so abundant that a hundred or more can be shot in a day, and congregate in flocks of immense numbers, now and then mixed with the smaller species, called there the Rock Grouse, (*Lagopus rupestris.*) Their flesh is then salted for summer use. At that season they are of a pure white, except the tail, which retains its jetty blackness. I was further informed that their flesh is then dry, and not to be

compared with what it is in summer, when I found it tender, and having an agreeable aromatic flavour.

The Willow Grouse breeds in Labrador about the beginning of June. The female conceals her nest under the creeping branches of the low firs. It consists of bits of dry twigs and mosses drawn into a form. The eggs are from five to fourteen, according to the age of the bird, and are marbled with irregular spots of reddish-brown, on a dull fawn-colour or rufous ground They raise only one brood in the season.

The pair represented in the plate, with their young, were procured by my friend GEORGE SHATTUCK, Esq., of Boston, one of my party, who shot the first pair found by us in Labrador. They were in their full summer plumage. I think these birds, as well as the Canada Grouse, have what I call a continued moult, young feathers being found upon them at all seasons.

TETRAO (LAGOPUS) SALICETI, *Willow Grouse*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 351.
WILLOW GROUSE, or LARGE PTARMIGAN, Nutt. Man., vol. i. p. 674.
WILLOW GROUSE, *Tetrao saliceti*, Aud. Orn. Biog., vol. ii. p. 528.

Male, 17, 26½. Female, 16, 26.

In Maine, New Brunswick, and Nova Scotia, during winter. Breeds plentifully in Newfoundland, Labrador, and the Fur Countries. Rocky Mountains.

Adult Male, in summer.

Bill short, robust; upper mandible with the dorsal outline curved, the edges overlapping, the tip declinate and rounded, the basal part with a deep sinus on each side; lower mandible convex, broad, with the tip rounded. Nostrils basal, roundish, concealed by the feathers. Head small, neck rather long, body bulky. Feet of ordinary length; tarsus feathered, as are the toes, excepting towards the end, where they are covered with small scales and three terminal scutellæ; hind toe extremely short, two lateral equal; claws slightly arched, depressed, broad, with thin edges, and rounded.

Plumage compact, the feathers generally rounded, those of the head and upper neck narrow and proportionally short. The legs and toes covered with hair-like feathers. Wings short, the primaries strong, narrow, tapering, curved; third longest, second and fourth little shorter. Tail short, even, or very slightly rounded, of fourteen broad feathers, and four narrower central ones, which are superior.

Bill black. Iris brown. Toes and claws dark brown, the edges of the latter yellowish-grey. Head and neck bright chestnut, the feathers on the back part of the latter and crown of the head barred with black, and tipped

with whitish. The back, some of the wing-coverts, the nearer secondary quills, the four upper tail-feathers, the anterior part of the breast, and part of the sides under the wings, variegated with brownish-black, chestnut and white, the feathers being of the first colour in the middle, and transversely barred with the second towards the end, while the terminal margin is of the last. Most of the coverts, all the primaries, and the greater number of the secondaries, with the whole under surface of the wings, the middle of the breast, the abdomen, legs and feet, pure white, the shafts of the primaries are more or less brown, excepting towards the ends. The fourteen tail-feathers are brownish-black, with the tips white, as is the basal portion of the outer web of the outermost. The superciliary membranes are vermilion.

Length 17 inches, extent of wings 26½; bill along the ridge ¾; tarsus 1½; middle toe with the nail 1 7/12; weight 1¼ lbs.

Adult Female, in summer.

In the female the superciliary membrane is much smaller, but of the same colour, as are the wings and tail. The head, neck, breast, abdomen, sides, as well as the upper parts, are variegated in a manner resembling the back of the male, but with the black spots larger, and the transverse bars of light brownish-red broader and less numerous; the lower surface much lighter.

Length 16 inches, extent of wings 25; weight 1 lb.

Young a few days old.

The young are covered with a dense elastic down, of a yellowish tint, variegated above with a few large streaks of dark brown, on a light brown ground; the top of the head with a longitudinal brown patch margined with black.

The young when fully fledged resemble the female.

The Labrador Tea Plant.

Ledum latifolium, *Willd.*, Sp. Pl., vol. ii. p. 602. *Pursh*, Fl. Amer. Sept., vol. i. p. 301. —Decandria Monogynia, *Linn.*—Rhododendra, *Juss.*

The Labrador Tea Plant springs up among the rich and thick moss that everywhere covers the country of Labrador. I was informed that the fishermen and Indians frequently make use of it instead of tea.

It is a small shrub, about a foot in height, with linear oblong leaves, which are folded back at the margin, and covered on the back with a rust-coloured down. The flowers are white.

American Ptarmigan?

Male.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen. Philad.ª

The Sea Pea.

Pisum maritimum, *Willd.*, Sp. Pl., vol. iii. p. 1071. *Pursh*, Flor. Amer. Sept., vol. ii. p. 470.—Diadelphia Decandria, *Linn.*—Leguminosæ, *Juss.*

This species of Pea grows in the same country, generally in the vicinity of the sea. It has an angular stem, with sagittate stipules, and many-flowered peduncles, with large purple, blue and red flowers.

AMERICAN PTARMIGAN.

Lagopus Americanus, *Aud.*

PLATE CCC.—Male.

The Common Ptarmigan of Britain, *Lagopus mutus* of Leach, which is said to occur on the continent of Europe, although less abundant there and confounded with the Rock Grouse, *Lagopus rupestris*, has been, it was thought, found by Captain Sabine on the islands lying on the south-west side of Baffin's Bay, and this species was published in my Ornithological Biography as identical with that bird. Individuals of a species of Ptarmigan obtained in Baffin's Bay have been considered as specifically identical with the Scottish Ptarmigan. In the Fauna Boreali-Americana, Dr. Richardson remarks, that "a specimen, in summer plumage, sent to Sir John Franklin from Churchill river, was identified by Joseph Sabine, Esq., with the Scotch Ptarmigan,—thus establishing it as an inhabitant of the American continent." "I have not been able to trace that specimen," he continues, "and I am informed, that the only authentic examples from the New World are now in the possession of Lord Stanley, now Earl Derby, to whom they were presented by Mr. Sabine." The distinguished nobleman here mentioned, my generous friend the Earl of Derby, having, with his usual liberality, lent me three fine specimens, I have represented that which seemed to me the most beautiful. At the same time, after due consideration, I am satisfied that the bird figured by me is not the Common Ptarmigan,

although it presents all the characters of the Rock Grouse or Ptarmigan. It is less than the Scotch Ptarmigan, and its wings are much shorter, and even more concave ; and in these respects it corresponded with the other two specimens, which however had the plumage pure white, with the exception of the tail-feathers and the shafts of the primaries. I have therefore named this bird, as a species distinct from either, *Lagopus Americanus*. I have seen three specimens in the Museum of the Andersonian Institution of Glasgow, which were purchased from Captain SABINE, and which I think may be referred to this Ptarmigan, or at all events are different from the Rock Grouse. In the present state of our knowledge as to the changes and variations of plumage in Ptarmigans, it is impossible to form a decided opinion in many instances ; nor will the subject be free of doubt until each alleged species has been traced through all its gradations.

TETRAO LAGOPUS, Sabine, Richardson, &c.
TETRAO (LAGOPUS) MUTUS, *Ptarmigan*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 350.
COMMON PTARMIGAN, *Tetrao mutus*, Aud. Orn. Biog., vol. v. p. 196.

Male, 14¾, wing 8¼.

Melville Island. Churchill river.

The following is the description of the individual represented in the plate.

Adult Male.

Bill short, robust ; upper mandible with its dorsal outline curved, the ridge and sides convex, the edges overlapping, the tip declinate, thin edged, rounded ; lower mandible with the angle short and wide, the dorsal line convex, the back broadly convex, the sides rounded, the edges inflected, the tip blunt. Nostrils basal, roundish, concealed by the feathers.

Head small, ovate ; neck of moderate length ; body full. Feet of ordinary length, robust ; tarsus feathered, as are the toes ; the first toe very small, the middle toe much longer than the lateral, which are nearly equal, the inner being a little longer. Claws slightly arched, depressed, broad, thin-edged, rounded at the end.

Plumage compact, the feathers ovate and rounded ; those on the tarsi, toes, and soles, oblong, with loose stiffish barbs. Wings rather short, concave ; the primaries strong, narrow, tapering, pointed ; the first an inch and ten-twelfths shorter than the second, which is four-twelfths shorter than the third, the latter being the longest. Tail rather short, nearly even, of sixteen broad feathers, of which the two middle are less strong, but longer than the rest by a quarter of an inch.

Bill black ; superciliary membrane scarlet ; claws greyish-yellow, dusky toward the base. The plumage is pure white ; but on the head, sides of the

neck, and back, are several new feathers which are broadly barred with orange-yellow and dark brown. The feathers in the loral space are black only at the base. The shafts of the six outer quills are brownish-black, and all the tail-feathers, the two middle excepted, are greyish-black, with a terminal narrow band of white.

Length to end of tail 14 inches; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{8}{12}$; wing from flexure 8; tail $4\frac{1}{2}$; tarsus $1\frac{2}{12}$; middle toe 1, its claw $\frac{9}{12}$.

The bill seems to be narrower than it generally is in the Rock Grouse, but the description and dimensions of this bird are scarcely different from those of an individual of that species in the same state of plumage.

A specimen in the Museum of the Andersonian Institution, marked "*Lagopus vulgaris*, Ptarmigan, Melville's Island," is a male in winter plumage. The bill is brownish-black, as are the claws. A black band extends from the bill to the eye and behind it. The general colour of the plumage is pure white, as are the two middle tail-feathers, the rest greyish-black, narrowly tipped with white. The third quill is longest, two-twelfths longer than the second, which exceeds the first by an inch and five-eighths.

Length to end of tail $14\frac{1}{2}$ inches; bill along the ridge $\frac{7}{12}$; wing from carpus $8\frac{2}{12}$; tail 5; tarsus $1\frac{1}{12}$; middle toe and claw $1\frac{1}{12}$.

Another specimen marked "*Lagopus vulgaris*, Ptarmigan, Melville's Island," is in summer plumage. The general colour of the upper parts, fore-neck, and sides, is reddish yellow, finely undulated transversely with blackish-brown and greyish white; the bars on the head and neck larger. The middle tail-feathers are similar to those of the back; the rest brownish black, tipped with white. There is little white on the lower parts, and that only in patches. The greyish-white undulations in this individual tend to approximate its colouring to that of some specimens of the Scottish Ptarmigan, but still the prevailing tint is not grey, but brownish-yellow.

Bill $\frac{7}{12}$ of an inch long; wing from flexure 8; tail 5; tarsus $1\frac{1}{12}$.

A specimen marked "Ptarmigan, Melville Island, Aug. 15, 1820," is a young bird, marked like the old, but with the bands larger. The fore part of the wings, the primaries, the secondary coverts, and the abdomen, are white.

ROCK PTARMIGAN.

LAGOPUS RUPESTRIS, *Gmel.*

PLATE CCCI.—MALE, FEMALE, AND YOUNG.

Whilst at Labrador, I was informed by Mr. JONES that a smaller species of Ptarmigan than that called the Willow Grouse, *Lagopus Saliceti*, was abundant on all the hills around Bras d'Or, during the winter, when he and his son usually killed a great number, which they salted and otherwise preserved; and that in the beginning of summer they removed from the coast into the interior of the country, where they bred in open grounds, never, like the Willow Grouse, retreating to the wooded parts. They seldom appear at Bras d'Or until the last of the Wild Geese have passed over, or before the cold has become intense, and the plains deeply covered with snow. While about his house, they repair to the most elevated hill-tops, from which the violence of the winds has removed the snow. There they feed on the mosses and lichens attached to the rocks, as well as on the twigs and grasses scantily found in such places at that season. They keep in great packs, and when disturbed are apt to fly to a considerable distance, shifting from one hill to another often half a mile off.

Not having seen this species alive, and my drawing having been taken from specimens kindly presented to me by my friend Captain JAMES ROSS, R. N., I cannot do better than present you here with the observations of Dr. RICHARDSON, as recorded in the Fauna Boreali-Americana. "HUTCHINS reports that the Rock Grouse is numerous at the two extremities of Hudson's Bay, but does not appear at the middle settlements (York and Severn Factories), except in very severe seasons, when the Willow Grouse are scarce; and Captain SABINE informs us that they abound on Melville Peninsula, lat. 74° to 75°, in the summer. It arrived there in its snow-white dress on the 12th of May, 1820; at the end of that month the females began to assume their coloured plumage, which was complete by the first week in June, the change at the latter period being only in its commencement with the males. Some of the males were killed as late as the middle of June in their unaltered winter plumage. In this respect the species differs from the Willow Grouse, whose males first assume the summer colour. The Rock Grouse is found also on Melville Peninsula and the Barren Grounds, seldom going farther south in winter than latitude 63° in the interior, but descending

3.

Rock Ptarmigan.

1. Male, in Winter 2. Female, Summer Plumage 3. Young in August.

Drawn from Nature by J.J.Audubon F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

along the coast of Hudson's Bay to latitude 58°, and in severe seasons still farther to the southward. It also occurs on the Rocky Mountains as far south as latitude 55°. It exists in Greenland, is common in Norway, is known in Sweden by the name of *Sno Rissa*, and is the species most frequent in the Museums of France and Italy under the name of *Tetrao Lagopus*. It is not a native of Scotland. The Rock Grouse in its manners and mode of living resembles the Willow Grouse, except that it does not retire so far into the woody country in winter. Contrary, however, to what HEARNE says, it is frequent in open woods on the borders of lakes in that season, particularly in the 65th parallel of latitude, though perhaps the bulk of the species remains on the skirts of the Barren grounds. It hatches in June. The ground colour of the egg is, according to Captain SABINE, a pale reddish-brown, and is irregularly spotted and blotched with darker brown." Specimens in my possession, coloured as here described, average one inch and five-eighths in length, by an inch and an eighth in breadth.

TETRAO (LAGOPUS) RUPESTRIS, Swains. and Rich. F. Bor. Amer., vol. ii. p. 354.
ROCK GROUSE, Nutt. Man., vol. i. p. 610.
ROCK GROUSE, *Tetrao rupestris*, Aud. Orn. Biog., vol. iv. p. 483.

Male, 13½, wing, 7$\frac{9}{12}$.

Breeds from Labrador to the Arctic Seas. Rocky mountains. Abundant. Migratory.

Adult Male in winter.

Bill short, robust; upper mandible with the dorsal outline curved, the ridge and sides convex, the edges overlapping, the tip declinate, thin edged, but rounded; lower mandible with the angle short and wide, the dorsal line convex, the back broadly convex, the sides rounded, the edges inflected, the tip blunt. Nostrils basal, roundish, concealed by feathers.

Head small, ovate; neck of moderate length; body bulky. Feet of ordinary length, robust; tarsus feathered, as are the toes, the first toe very small, the middle toe much longer than the lateral, which are nearly equal, the inner being a little longer. Claws slightly arched, depressed, broad, with thin edges and rounded at the tip.

Plumage compact, the feathers generally ovate and rounded; those on the tarsi, toes, and soles oblong, with loose stiffish barbs. Wings rather short, concave; the primaries strong, narrow, tapering, pointed; the first an inch and seven twelfths shorter than the second, which is four twelfths shorter than the third, this being the longest, but only exceeding the fourth by a twelfth and a half. Tail rather short, nearly even, of sixteen broad feathers

of which two are incumbent, less strong, and longer than the rest by two-twelfths of an inch.

Bill black; superciliary membrane scarlet; claws dusky, towards the end yellowish. The plumage is pure white, with the exception of a broad band of black from the upper mandible to the eye, and for a short space behind it; the shafts of the six outer quills, which are brownish-black, and all the tail-feathers, the two middle excepted, they being of a deep greyish-black colour, with a terminal narrow band of white.

Length to end of tail 13½ inches, to end of wings 12; wing from flexure 8; tail 4½, tarsus $1\frac{2}{12}$; hind toe $\frac{2}{12}$, its claw $\frac{5}{12}$; middle toe $\frac{11}{12}$, its claw $\frac{9}{12}$.

Male in summer.

In summer, the plumage differs little in texture, with the exception of that on the feet, which is short and thin on the tarsi, worn on the base of the toes, of which the soles and half of the upper surface are denuded. The bill and claws are of the same colour as in winter; but the plumage is variegated with black, reddish-yellow, and white. The upper parts may be described as black, transversely and irregularly banded and spotted with yellowish-red, the feather terminally margined with white, there being on each feather several bars of yellowish-red running from the margin inwards, but leaving a black space in the centre. The lower parts are lighter, more broadly and regularly barred with brownish-black and light reddish yellow. The feathers along the edge of the wing, alula, primary coverts, nearly all the secondary coverts, primaries and outer secondaries, white; as are the lower surface of the wing, the axillar feathers, and some of the feathers on the abdomen, as well as those on the feet, the latter being soiled or tinged with yellowish or grey. The shafts of the primaries are brownish-black, and the tail is black as in winter, tipped with white, and with the lateral feathers having part of their outer web white; the two middle feathers barred like the back. The dimensions of an individual are as follows:

Length to end of tail 13½ inches, to end of wings 11½; wing from flexure $7\frac{9}{12}$; tail 4½; bill along the ridge $\frac{7}{12}$; tarsus $1\frac{2}{12}$; middle toe $1\frac{1}{12}$, its claw $\frac{6}{12}$.

Female in summer.

The female does not differ materially from the male, the yellow bands being only broader and lighter.

Very great differences are observed in the length and form of the claws, they being in some individuals very long, thin-edged, and tapering to a rounded point; in others very short, being worn down to the stump. This species is considerably smaller than the Ptarmigan of Scotland, which it precisely resembles in its winter plumage. In its summer plumage, however, it differs in having the markings larger; and as yet no specimens have been,

White-tailed Ptarmigan?

Adults, in Winter Plumage

Drawn from Nature by J.J. Audubon FRSFLS.

Lith.d Printed & Col.d by J.T. Bowen Phil.a

obtained marked with undulated, slender, ash-grey, and dusky lines, in any degree approaching those characteristic of the British bird in its autumnal plumage. The bill of the Rock Grouse is shorter and thicker than that of the Scotch Ptarmigan, although the reverse has been alleged.

WHITE-TAILED PTARMIGAN.

LAGOPUS LEUCURUS, *Swains.*

PLATE CCCII.—ADULT IN WINTER.

This pretty little Grouse is an inhabitant of the Rocky Mountains, where it was found by Mr. DOUGLAS and afterwards by Mr. DRUMMOND, who sent several specimens to England. It is said to extend as far as the Columbia river, but has not been observed in that region by either Mr. NUTTALL or Mr. TOWNSEND. All that is known of its habits is, that they resemble those of the Ptarmigan. Mr. DRUMMOND states, that this bird never has the black stripe from the bill to the eye, so conspicuous in the males of the other species. My figure was drawn from the only specimen now in the Museum of the Zoological Society of London.

TETRAO (LAGOPUS) LEUCURUS, Swains. WHITE-TAILED GROUSE, Richards and Swains. Fauna Bor. Amer., vol. ii. p. 356.
WHITE-TAILED GROUSE, Nutt. Man., vol. ii. p. 612.
WHITE-TAILED GROUSE, *Tetrao leucurus*, Aud. Orn. Biog., vol. v. p. 200.

Adult in winter.

Bill short, robust; upper mandible with the dorsal outline curved, the ridge and sides convex, the edges overlapping, the tip declinate, thin edged and rounded; lower mandible with the angle short and wide, the dorsal line convex, the back broadly convex, the sides rounded, the edges inflected, the tip obtuse. Nostrils basal, roundish, concealed by the feathers.

Head small, ovate; neck of moderate length; body full. Feet of ordinary length, stout; tarsus and toes feathered; the first toe very small, the middle toe much longer than the lateral, which are nearly equal. Claws slightly arched, depressed, broad, thin edged, the tip rather pointed.

Plumage compact, the feathers ovate and rounded; those of the tarsi and toes with loose stiffish filaments. Wings short, concave; primaries strong, narrow, tapering, pointed; the third and fourth longest. Tail rather short, slightly rounded, of sixteen broad feathers.

Bill greyish-black; superciliary membrane scarlet; claws greyish-yellow, dusky toward the base. The plumage is entirely pure white.

Length to end of tail 12 inches; bill along the ridge $\frac{6}{12}$, along the edge of lower mandible $\frac{9}{12}$; wing from flexure $6\frac{1}{2}$; tail 4; tarsus $1\frac{2}{12}$; middle toe and claw $1\frac{7}{12}$.

Dr. RICHARDSON'S description of the summer plumage is as follows:

"A summer specimen (lat. 54°). Head and neck shortly barred with blackish-brown and pale wood-brown or brownish-white; the front of the neck paler. Dorsal plumage, tail-coverts, scapulars, tertiaries, and the posterior lesser coverts, blackish-brown, cut about half way to the shafts by rather coarse ochraceous bars, intermixed with nearly an equal number of feathers, ochraceous throughout and thickly undulated with fine black lines. The breast, belly, and flanks are mostly pale ochre, broadly blotched and barred with blackish-brown, intermixed on the belly with some white feathers, and on the breast with a few of the finely undulated ones. The vent, legs, tail (which is only partially grown), the outer border of the wing, primaries, secondaries, and greater coverts, are white. The toes partially naked, not pectinated; the nails short and much worn."

FAMILY XXXIII.—RALLINÆ. RAILS.

Bill moderately stout, or slender, short or elongated, compressed, with the point narrow, but obtuse. Head small, oblong, compressed; neck of moderate length; body large, much compressed. Feet large; tibia bare at the lower part; tarsus stout, compressed, with very broad anterior scutella; toes very long, scutellate, marginate; hind toe rather short. Claws long, little arched, compressed, acute. Plumage blended, but stiffish. Wings short, convex, rounded; tail very short, rounded. Tongue slender, channelled above, tapering to a bristly point; œsophagus long, rather narrow; proventriculus bulbiform; stomach roundish, compressed, very muscular, with the lateral and inferior muscles prominent, the epithelium dense, with two flattish grinding surfaces; intestine long, of moderate width; cœca long, narrowed toward the base; cloaca globular. Trachea simple, flattened, with a pair of slender inferior laryngeal muscles. Nest bulky, and rudely constructed, on the ground, or supported by grass, or on trees. Eggs numerous, oblong. Young covered with stiffish black down.

Genus I.—GALLINULA, *Briss.* GALLINULE.

Bill as long as the head, nearly straight, stout, deep, compressed, tapering; upper mandible with a soft ovate or oblong tumid plate at the base, extending over the forehead, the dorsal line behind this slightly declinate, toward the tip arcuate, the ridge gradually narrowed to the middle, then slightly enlarged, the sides nearly erect, the edges sharp, the notches obsolete, the tip rather obtuse; nasal sinus extending nearly to the middle; lower mandible with the angle rather long and narrow, the dorsal line ascending, nearly straight, the sides nearly erect, the tip narrow. Nostrils submedial, lateral, oblong, direct. Head small, oblong, compressed; neck of moderate length; body large, much compressed. Feet large; tibia bare at the lower part; tarsus stout, of moderate length, compressed, with very broad anterior scutella; hind toe rather small and slender; anterior toes very long, fourth longer than second, third considerably longer, all scutellate. Claws very long, slender,

slightly arched, much compressed, tapering to a very acute point. Plumage blended; form and wings of moderate length, broad, convex, with the second and third quills longest; tail very short, much rounded, of twelve weak feathers; lower coverts almost as long.

PURPLE GALLINULE.

GALLINULA MARTINICA, *Linn.*

PLATE CCCIII.—MALE.

Reader, although you may think it strange, I candidly assure you that I have experienced a thousand times more pleasure while looking at the Purple Gallinule flirting its tail while gaily moving over the broad leaves of the water-lily, than I have ever done while silently sitting in the corner of a crowned apartment, gazing on the flutterings of gaudy fans and the wavings of flowing plumes. Would that I were once more extended on some green grassy couch, in my native Louisiana, or that I lay concealed under some beautiful tree, overhanging the dark bayou, on whose waters the bird of beauty is wont to display its graceful movements, and the rich hues of its glossy plumage! Methinks I now see the charming creature gliding sylph-like over the leaves that cover the lake, with the aid of her lengthened toes, so admirably adapted for the purpose, and seeking the mate, who devotedly attached as he is, has absented himself, perhaps in search of some secluded spot in which to place their nest. Now he comes, gracefully dividing the waters of the tranquil pool, his frontal crest glowing with the brightest azure. Look at his wings, how elegantly they are spread and obliquely raised; see how his expanded tail strikes the water; and mark the movements of his head, which is alternately thrown backward and forward, as if he were congratulating his mate on their happy meeting. Now both birds walk along clinging to the stems and blades, their voices clearly disclosing their mutual feelings of delight, and they retire to some concealed place on the nearest shore, where we lose sight of them for a time.

Now, side by side, they look for the most secure spot among the tall rushes that border the lake, and there they will soon form a nest, removed

Purple Gallinule.

Adult Male. Spring Plumage.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

alike from danger to be dreaded from the inhabitants of the land as of the water. On the thick mass of withered leaves are deposited the precious eggs, from which in time emerge the dusky younglings, that presently betake themselves to the water, over which they wander, guided by their affectionate parent, until it becomes expedient for the party to disperse.

The Purple Gallinule is a constant resident in the United States, although peculiar to our southern districts, where I have met with it at all seasons. It is in the Floridas, the lower parts of Alabama, and among the broad marshes bordering the Gulf of Mexico, in Lower Louisiana, that I have observed its habits. Beyond the Carolinas eastward, it is only met with as an accidental straggler. It never, I believe, ascends the Mississippi beyond Memphis, where indeed it is but rarely seen; but between Natchez and the mouths of the great river, it is abundant on all the retired bayous and small lakes. The southern portions of Georgia are also furnished with it; but in South Carolina it is rare. Proceeding south-westward along the Gulf of Mexico, I have found it as far as Texas, where it breeds, as well as in Louisiana, where I observed it coming from the south in May, 1837.

Having studied the habits of this bird under every advantage in Louisiana, and especially in the neighbourhood of New Orleans, and the mouths of the Mississippi, I will now, good reader, place before you the results of my observation. In the summer months, the Purple Gallinules remove with their broods to the prairies or large savannahs bordering the bayous or lakes on which they have bred, and remain in those places, which are generally covered with thick and tall grass, until the beginning of September, when the vegetation having been dried up by the intense heat and drought, neither food nor sufficient concealment can be obtained. The young birds usually abandon these plains first, and while the colour of their plumage is still green, instead of purplish-blue, which tint, however, is assumed before the return of spring. During all this while, its notes are as frequently heard as during the breeding season. They resemble the delicate whistling sounds of the Blue-winged Teal during its residence with us. At this season also its flesh is best, although it never equals that of the Fresh-water Marsh-hen, *Rallus elegans*, or of the Sora Rail, *Rallus carolinus*.

On the approach of winter, all the Purple Gallinules leave the savannahs and betake themselves to the immediate vicinity of ponds, bayous, or rivers, where through experience they become shy, vigilant, and cunning. They seldom remove from one place to another, or travel at all, unless by night, although in sequestered parts they feed both on land and on the water by day.

The Purple Gallinule breeds at a remarkably early period of the year. I have found young birds in their jetty down clothing in February, and they

have been observed in the same month by the keepers of the lighthouse at the south-west pass of the Mississippi, at Key West, and in other places. The parent birds are sometimes so very intent on saving their young, as to suffer themselves to be caught. At this period their calls are almost incessantly heard during the whole night, and are elicited during the day by any musical or remarkable noise. The nest is generally placed among a kind of rushes that are green at all seasons, round, very pithy, rarely more than five feet high, and grow more along the margins of ponds than in the water itself. The birds gather many of them, and fasten them at the height of two or three feet, and there the nest is placed. It is composed of the most delicate rushes, whether green or withered, and is quite as substantial as that of the Common Gallinule, flattish, having an internal diameter of eight or ten inches, while the entire breadth is about fifteen. The eggs, which are from five to seven, rarely more, are very similar to those of the Common Gallinule, being of a light greyish-yellow, spotted with blackish-brown. The young are at first quite black, and covered with down. They are fully fledged by the first of June, when as I have said, they and their parents remove to the wet savannahs in the neighbourhood.

The jerking motions of the tail of this bird, whenever it is disturbed, or attracted by any remarkable object, are very quick, and so often repeated as to have a curious appearance. It runs with great speed, and dives with equal address, often moving off under water with nothing but the bill above. The lightness and ease with which it walks on the floating plants are surprising, for in proceeding they scarcely produce any perceptible disturbance of the water. When swimming in full security, they move buoyantly and gracefully, throwing the head forward at every propelling motion of the feet. The flight of this species is less swift than that of the Common Gallinule, or of the Rails, unless when it is travelling far, when it flies high, and advances in a direct course by continued flappings; but when it is in its breeding or feeding grounds, its flight is slow and short, seldom exceeding thirty or forty yards, and with the legs hanging down; and it alights among the herbage with its wings spread upwards in the manner of the Rails. It often alights on the low branches of trees and bushes growing over the water, and walks lightly and gracefully over them.

It is seldom that more than one Purple Gallinule is shot at a time, unless in the beginning of the love-season, when the male and female are apt to swim or walk close together. The male at this period is said to be able to inflate the frontal plate while strutting, but I have never been fortunate enough to observe this.

The Purple Gallinule not unfrequently alights on ships at sea. While at the Island of Galveston, on the 26th of April, I was offered several live

individuals by the officers of the Boston frigate, which they had caught on board. My friend JOHN BACHMAN once received three specimens that had been caught three hundred miles from land, one of them having come through the cabin window. He also obtained from the Hon. Mr. POINSET a fine specimen caught on board, on the Santee river, in South Carolina, in May. It is easily kept alive if fed with bread soaked in milk ; and on this food I have known several that remained in good health for years. In Louisiana, where it is called *Rale Bleu*, its flesh is not held in much estimation, but is used by the negroes for making gombo.

My friend BACHMAN considers this species as rather scarce in South Carolina and Georgia, but states that it breeds there, as he has occasionally observed pairs on the head waters or preserves of rice plantations during summer, but never met with any in winter. The extreme limit of its range eastward is the neighbourhood of Boston, where a few individuals have been procured.

PURPLE GALLINULE, *Gallinula Porphyrio*, Wils. Amer. Orn., vol. ix. p. 67.
GALLINULA MARTINICA, Bonap. Syn., p. 336.
PURPLE GALLINULE, Nutt. Man., vol. ii. p. 221.
PURPLE GALLINULE, *Gallinula martinica*, Aud. Orn. Biog., vol. iv. p. 37.

Male, 13½, 21½.

Breeds and resides from Texas to South Carolina. Stragglers are seen as far as Massachusetts. Up the Mississippi to Memphis. Rather common in Louisiana and Florida.

Frontal plate blue ; bill carmine, tipped with yellow ; head, fore part of neck, and breast, purplish-blue ; abdomen and tibial feathers dusky ; sides and lower wing-coverts green ; lower tail-coverts white ; upper parts olivaceous green ; sides of neck, and outer part of wings, greenish-blue.

Weight of one individual 7½ oz., of another 8½, both males ; of a fourth 7 oz. ; of a fifth 5½ ; and of a sixth only 4½.

The female is somewhat smaller, but similar to the male, the frontal plate is less extended, and the tints of the plumage a little less vivid.

The young are at first covered with black down. When fledged they are olivaceous on the upper parts, dull purple beneath ; the bill dull green. After the first moult, the bill is light carmine, greenish yellow at the end, the head dark purple ; the plumage coloured as above described, but less brilliant, the tarsi and toes greenish-yellow.

In a male bird the tongue is 10 twelfths of an inch long, sagittate at the base, with conical papillæ, of which the outer are larger, slightly concave above, horny towards the end, which is thin, rather obtuse, and lacerated. On the middle line of the roof of the mouth anteriorly is a row of large

blunt papillæ, behind which are two rows; aperture of posterior nares linear. Œsophagus 7 inches long, of moderate width, its greatest diameter, at the lower part of the neck, where it is a little dilated, 8 twelfths. Proventriculus $1\frac{2}{12}$ long; its glandules $1\frac{1}{12}$ long. Stomach a large and powerful gizzard, broadly elliptical, $1\frac{1}{2}$ inches long, $1\frac{5}{12}$ broad, its lateral muscles large, the tendons covering nearly their whole surface, the left muscles $\frac{1}{4}$ inch thick, the right $\frac{5}{12}$, the cuticular lining moderately rugous. Intestine 21 inches long, from $\frac{5}{12}$ to $\frac{6}{12}$ in diameter. Rectum $2\frac{3}{4}$ inches; cœca 2, their diameter $\frac{3}{12}$ towards the end.

Trachea, moderately extended, $5\frac{1}{2}$ inches long, its greatest breadth $3\frac{1}{12}$, its least $1\frac{1}{12}$. Its rings 130, very slender, unossified, collapsed, and owing to their narrowness in the middle line before and behind, seeming as if broken there; bronchi with 15 half-rings. The contractor muscles moderate, the sterno-tracheal slender; a pair of muscles on the lower larynx, from the lower rings of the trachea to the membrane over the first bronchial ring.

In the mouth was a small frog, in the pharynx two, in the œsophagus two more, a large piece of root, numerous fragments of insects, and a leech; the frogs $2\frac{1}{2}$ inches long. In the gizzard were seeds, and fragments of white fleshy roots.

THE COMMON GALLINULE.

GALLINULA CHLOROPUS, *Linn.*

PLATE CCCIV.—MALE.

The two species of Gallinule which occur in the United States are confined within a comparatively small range in that extensive country, the southern portions of which appear to suit them beter, at all seasons of the year, than the other districts. The Common Gallinule is extremely abundant during winter along the rivers, fresh-water creeks, lagoons, ponds and lakes between the Gulf of Mexico and the eastern shores of the Floridas, while in spring and summer a good number migrate eastward into the Carolinas, and now and then a few stragglers may be seen on the fresh waters of the Middle Districts, beyond which none, to my knowledge, have

Common Gallinule.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S. *Adult Male.* Lith.ᵈ Printed & Col.ᵈ by J. T. Bowen. Phila.ᵈ

ever been observed. They seldom ascend any of our southern streams to any considerable distance, few are ever met with many miles above Natchez on the Mississippi, and none are to be seen in the Western Country.

In general they are equally diurnal and nocturnal in their habits, and when undisturbed frequent the land as much as the water. In the lower parts of Louisiana and the Floridas, I have seen them seek their food and amuse themselves by day in the pastures and fields, and I have observed both them and the Gallinules of England enacting their courtship, while the sun was yet high above the horizon. In sight of man, however, they are timorous, although not shy, and retreat from him among the grass and sedges bordering the water, to which they resort for safety. If shot at, or otherwise frightened, they run with speed, and either fly or swim off as fast as possible, to elude their enemy.

During my various temporary residences in London, I have often seen the Gallinules resort to the grounds in the Regent's Park at all hours of the day. They were there in a manner partially domesticated, and walked quite unconcernedly in the meadows, led their young over the water, and paid their addresses to each other, while fifty or more persons were amusing themselves with feeding the ducks and swans over the bridge leading to the inner circle, and within sight of these birds. While I was at Spring Garden Springs in East Florida, in the early part of January, the Gallinules were seen in great numbers on every bayou leading towards the waters of the St. John, and at that early period the manifestations of their amatory propensity were quite remarkable. The male birds courted the females, both on the land and on the water; they frequently spread out their tail like a fan, and moved round each other, emitting a murmuring sound for some seconds. The female would afterwards walk to the water's edge, stand in the water up to her breast, and receive the caresses of the male, who immediately after would strut on the water before her, jerking with rapidity his spread tail for awhile, after which they would both resume their ordinary occupations. This was in the middle of the day, when I could have counted eight or ten pairs in sight.

The nest is formed with more labour than art, being composed of a quantity of withered rushes and plants, interwoven in a circular form, frequently from two to three inches thick in the centre, surrounded by an edge or brim four or five inches high. If not greatly disturbed, these birds raise several broods in a season, using the same nest, and making additions to it previous to depositing each new set of eggs. In Lower Louisiana I found it usually five or six feet from the water, among the rankest weeds, along the bayous and lakes, which are so numerous there. In some instances it was placed on a prostrate trunk of a tree over the water, when the mate-

rials of which it was composed were less abundant than in other circumstances. I never saw one floating loose, but have often heard people say they had occasionally seen a nest in that state, although I am not much disposed to give credit to such assertions. The number of eggs seldom exceeds eight or nine, and is more frequently from five to seven. As the bird lays more than once, its progeny is thus numerous. The Gallinules cover their eggs when they leave them, no doubt to protect them from Crows and other enemies, but return to them as soon as food has been procured, although both sexes incubate. The eggs measure an inch and five-eighths, by an inch and one and a half eighths, and are of a dull darkish cream colour, spotted and dotted with various tints of reddish-brown and umber.

The females are as assiduous in their attentions to their young as the Wild Turkey Hens; and, although the young take to the water as soon as hatched, the mother frequently calls them ashore, when she nurses and dries them under her body and wings. In this manner she looks after them until they are nearly a month old, when she abandons them and begins to breed again. The young, which are covered with hairy, shining, black down, swim beautifully, jerking their heads forward at each movement of their feet. They seem to grow surprisingly fast, and at the age of six or seven weeks are strong, active, and perhaps as well able to elude their enemies as the old birds are. Their food consists of grasses, seeds, water-insects, worms, and snails, along with which they swallow a good deal of sand or gravel. They walk and run over the broad leaves of water-lilies as if on land, dive if necessary, and appear at times to descend into the water in search of food, although I cannot positively assert that they do so.

On more than one occasion, I have seen a flock of these young birds playing on the surface of the water like Ducks, beating it with their wings, and splashing it about in a curious manner, when their gambols would attract a garfish, which at a single dart would seize one of them and disappear. The rest affrighted would run as it were with inconceivable velocity on the surface of the water, make for the shore, and there lie concealed and silent for a quarter of an hour or so. In the streams and ponds of the Floridas, this species and some others of similar habits, suffer greatly from alligators and turtles, as well as from various kinds of fish, although, on account of their prolific nature, they are yet abundant.

This Gallinule seldom resorts to salt water, but at times is met with on the banks of bayous in which the water is brackish. This, however, happens only during winter. On land it walks somewhat like a chicken, and thirty, forty, or more individuals may be seen searching for worms and insects among the grass, which they also nip in the manner of the domestic fowl.

On such occasions, the constantly repeated movements of their tail are rendered conspicuous by the pure white of the feathers beneath it, which, along with the white stripes on the flanks, and in spring the vivid red of the frontal plate, renders their general appearance quite interesting. In cases of danger, they run with great speed, and easily conceal themselves. On the water they sit very lightly, and swim with activity, the movements of their head and neck keeping pace with those of their feet. They pick up their food from either side, continually jerk their tail, and not unfrequently touch the water with it.

Although not a migratory bird, this species flies very well, whenever it has occasion to rise from the ground. Its wings, although concave, are large for its size, more so in fact than those of *Rallus crepitans*, which migrates to a considerable extent. But in general the Gallinules are averse from flying, unless when anxious to remove from one lake or stream to another, when they rise fifty or sixty feet in the air, and fly with ease and considerable velocity, by continued flappings, the neck and legs stretched out. At all other times when raised, they suffer their legs to dangle, proceed slowly to a short distance, and drop among the reeds, or, if over the water, they dive and hide, leaving nothing but the bill projecting above the surface.

The young in autumn have not attained their full size; their colours are much duller than those of the old birds, particularly the stripes on the flanks and under the tail, which are of a dull cream colour instead of being pure white. The frontal plate is small, and almost covered by the feathers around it; the legs and feet are of a dingy green, and the red band on the tibia is scarcely apparent. In spring they acquire their full plumage, but the frontal plate increases in size for several years.

There are great differences as to size between birds of both sexes. The male from which I drew the figure in the plate, was of an average size, having been selected from a bagful procured expressly for the purpose.

GALLINULA GALEATA, Bonap. Amer. Orn., vol. iv. p. 128.
FLORIDA GALLINULE, *Gallinula galeata*, Nutt. Man., vol. ii. p. 223.
COMMON GALLINULE, *Gallinula Chloropus*, Aud. Orn. Biog., vol. iii. p. 330.

Male, 14, 22.

From Texas to South Carolina, common, and resident. Stragglers are seen as far as Massachusetts. Abundant in Louisiana and Florida. Up the Mississippi to Natchez. Fresh water.

Adult Male in spring.

Bill shorter than the head, nearly straight, rather stout, deep, compressed, tapering. Upper mandible with a soft oblong plate at the base, extending over the forehead, the dorsal line beyond this plate straightish and slightly

declinate as far as the middle, then arcuato-declinate, the ridge rather narrow, the sides nearly perpendicular, towards the end slightly convex, the edges sharp, with a notch close upon the narrow obtuse tip. Nasal groove extending to the middle of the bill, rather broad ; nostrils submedial, lateral, linear, direct, pervious. Lower mandible with the angle long and narrow, the sides nearly erect, with a groove to the middle, the dorsal line beyond the angle ascending, straight, the edges sharp, inclinate, the tip narrowed, rather sharp.

Head small, oblong, much compressed. Neck of moderate length, slender. Body much compressed. Feet large, long ; tibia bare a considerable way above the joint ; tarsus rather long, strong, compressed, anteriorly covered with broad scutella, laterally with angular scales, posteriorly with minute scales ; hind toe comparatively small, middle toe longest and much longer than the tarsus, fourth considerably shorter, and but little longer than the second ; toes, free, slender, compressed, scutellate above, flat beneath and marginate ; claws, rather long, slender, much compressed, acute.

Plumage, soft, blended, on the fore part of the head short ; a tuft of elongated incurved feathers on the sides. Wings short, broad ; alula large ; primaries curved, broad, second and third longest, first and sixth about equal ; secondaries broad and rounded. Tail short, much rounded, of twelve rather weak rounded feathers, which but slightly exceed the upper and lower coverts.

Frontal plate and bill deep carmine, the ends of both mandibles yellow. Iris bright red. Feet yellowish-green, a portion of the bare part of the tibia carmine ; claws dusky. Head and neck deep bluish-grey ; that colour continues paler over the breast, sides and abdomen, the latter having the feathers tipped with greyish-white, and the posterior hypochondrial feathers having a longitudinal band of white towards the end ; lower eyelid white, as are the lateral lower tail-coverts, those in the middle black. The back and wings are deep olive, the latter having a narrow edging of white, which also runs along the outer quill. Tail brownish-black.

Length to end of tail 14 inches, to end of claws 19 ; extent of wings 22 ; wing from flexure $7\frac{1}{4}$; tail 3 ; bill from base of frontal plate $1\frac{1}{12}$, along the edge of lower mandible $1\frac{1}{4}$; tarsus $2\frac{1}{4}$, middle toe $2\frac{7}{12}$, its claw $\frac{8}{12}$. Weight 12 oz.

The female is similar to the male, but has the frontal plate smaller.

The young, when fledged, have the upper part of the head of an olivaceous-brown, like the back and wings, the neck of a light dull grey, the chin dull white, the lower parts light grey, tinged with yellowish on the breast, most of the feathers tipped with whitish, the lines on the hypochondrial feathers of a dull cream colour and of small extent. The frontal plate is small, and

with the bill of a dingy greenish colour, as are the feet, the claws yellowish-brown.

On comparing together a great number of European and American specimens, I can find no specific differences. Individuals of either kind are larger or smaller, their frontal plates differ in size and somewhat in form, as do the bill and the claws; but if the species are really different, Nature has made them so wonderfully like each other, that there seems to me no possibility f distinguishing them.

My friend Dr. NEILL has furnished me with the following anecdotes illustrative of the habits of this bird. "At Canonmills Loch, near Edinburgh, a pair (or sometimes two pairs) of Water-hens breed yearly, making their nest on the branches of some very large *saughs* (willow-trees, *Salix russeliana*) growing in my garden, and overhanging the pond. One season (four or five years ago) finding themselves persecuted by a tame Heron, which watched and devoured their first young brood (for we detected him in the act), they formed their nest more than *fifteen* feet high on the trunk of the willow-tree. There the eggs were hatched in safety, four or five young being in due time seen sailing about with the old birds. We had only one pair on the Loch last summer. How they descended to the water can only be conjectured: they might have crept downwards three or four feet, but they must at all events have fallen at once from a height of not less than twelve feet. When the pond is frozen over and covered with skaters, the Water-hens enter the garden and conceal themselves in an overgrown rock-work, subsisting on minced flesh mixed with bread or potatoes, purposely laid down for them, and on which I have often watched them feasting when the snow was lying deep."

Genus II.—FULICA, *Linn.* COOT.

Bill as long as the head, nearly straight, stout, deep, compressed, tapering; upper mandible with a soft ovate or oblong tumid plate at the base, extending over the forehead, the dorsal line declinate, toward the tip arcuate, the ridge narrowed to the middle, then slightly enlarged, the sides nearly erect, the edges short, the notches obsolete, the tip rather obtuse; nasal sinus extending nearly to the middle; lower mandible with the angle rather long and narrow, the dorsal line ascending, nearly straight, the sides nearly erect, the tip narrow. Nostrils submedial, lateral, linear, direct. Head small, oblong, compressed; neck of moderate length, slender; body full, compressed. Feet large; tibia bare at the lower part; tarsus stout, of moderate length, compressed, with very broad anterior scutella; hind toe rather small and slender; anterior toes very long, their margins dilated into flat lobes; the hind toe with a single inferior lobe. Claws of moderate length, slightly arched, much compressed, acute. Plumage blended, soft. Wings short, broad, convex, with the second quill longest. Tail very short, much rounded, of twelve weak feathers; lower coverts nearly as long. Gizzard extremely muscular; cæca very long, being a fifth part of the length of the intestine.

THE AMERICAN COOT.

Fulica Americana, *Gmel.*

PLATE CCCV.—Male.

From November until the middle of April the Coots are extremely numerous in the southern parts of the Floridas, and the lower portions of Louisiana. At that season they are seen in flocks of several hundreds, following their avocations on all the secluded bayous, grassy lakes, and

American Coot.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen

inlets, which are so plentiful in those countries; but after the period above mentioned, none remain, and therefore it is certain none can breed there, although such is asserted by Mr. BARTRAM, who no doubt mistook the Common Gallinule for the Coot, that bird breeding in those places in considerable numbers. During the month of September, the Coot is also abundant on all the western waters, and its appearance in those districts being so much earlier than in the Floridas, is a sure indication of the inland course of its migrations. On the sea-coast, in fact, it is comparatively rare.

Although the curious form of their feet, and the situation of their legs, might induce one to suppose these birds incapable of moving on land with ease, experience proves the contrary, for they not only walk with freedom, but can run with great speed when necessary. They are accustomed to leave the water too, and resort to open lands on the margins of streams and lakes, for the purpose of feeding, both in the morning and in the evening. While ascending the Mississippi, being about fifty miles above New Orleans, on the 21st of March, 1822, the weather cloudy, I had the pleasure of seeing about six or seven hundred of these birds feeding on the grass of a savannah bordering the river. I took them while at some distance for a great flock of Guinea Fowls. Their movements were brisk, they often struck at each other in the manner of the domestic fowl, and ran with surprising celerity. As I approached nearer, I plainly saw them nibble the tender grass, in the same manner as poultry; and having found a place of concealment behind a rise of the ground, I laid myself flat, and observed their motions at leisure; but during twenty minutes spent in that situation, I did not hear a single note from the flock. I fired among them, and killed five, on which the rest, after running a few steps, all rose and flew off with speed towards the river, mounted high in the air, came curving over me, their legs hanging behind, their wings producing a constant whir, and at length alighted on a narrow channel between the shore, where I was, and a small island. Following them with caution, I got sufficiently near to some of them to be able to see them leap from the water to seize the young leaves of the willows that overhung the shores. While swimming, they moved with ease, although not with much speed, and used a constantly repeated movement of the head and neck, corresponding with that of the feet. Now, twenty or thirty of them would close their ranks, and swim up the stream in a lengthened body, when they would disperse, and pick up the floating substances, not one of them diving all the time. On firing at a large group of them that had approached me, they started off in various directions, patting the water with their feet, and rushing with extended wings, for thirty or forty yards, but without actually flying. After this, they made towards the brushy shores, and disappeared for about a quarter of an hour. The rest of the birds, which

were a few hundred yards off, scarcely took notice of the report of the gun; and before I left the place, they had returned to the shore, and walked into another savannah, where they probably remained until night. The next morning not a single Coot could I find while looking for them, for several miles along the river, and I concluded that they had left the place, and continued their migratory journey northward, this being about the beginning of the time of their general departure.

Whilst at General HERNANDEZ'S, in East Florida, I found the Coot abundant in every ditch, bayou, or pond. This was in December, 1831, and in the next month I saw great flocks of them near the plantation of my friend JOHN BULOW, Esq. Whilst on a visit to Spring Garden Springs, at the head of the St. John's river, I observed them to be equally abundant along the grassy margins of the lagoons and lakes. On my return from the upper parts of that river to St. Augustine, on the 28th February, I saw large flocks of them already moving northward. They had suddenly become shy, and would rise before our boat, at a distance of a hundred yards or so, with apparently scarcely any difficulty, and fly in loose flocks at a considerable height, half a mile or more at a time, and without uttering a note. Indeed, the only sound I ever heard these birds utter, is a rough guttural note, somewhat resembling *cruck, cruck*, which they use when alarmed, or when chasing each other on the water in anger. I am doubtful whether our Coot cackles and cries by night and by day, as has been reported; on the other hand, I am pretty well assured that Gallinules and Rails of different species have been confounded with the Coot in this respect.

I never saw this species dive for food, and the only fishes that I ever found in the many that I have opened, were very small minnows or fry, which I think they catch along the shallow edges of the water. Indeed, unless when wounded, our Coot feels great reluctance at immersing its body in the water; at all events, it has not the quickness of any of the diving birds, and rarely escapes the shot of a common flint gun while attempting to get away. When wounded it dives to some distance, but as soon as it reaches the grass or reeds, it contents itself with lying flat on the water, and thus swimming to the nearest shore, on reaching which it at once runs off and hides in the first convenient place. When undisturbed, it feeds both by day and by night, and as often on land as on the water. Its food consists of seeds, grasses, small fishes, worms, snails, and insects, and along with these it introduces into its stomach a good quantity of rather coarse sand.

The principal breeding places of this species are yet unknown to me. At Charleston it was supposed that it breeds in the neighbourhood of that city; but my friend BACHMAN, while searching for their nests at the proper season, saw that the Common Gallinule was in fact the bird that had been taken for

the Coot. My learned friend NUTTALL mentions that a pair had bred in Fresh Pond near Boston, and that he there saw parents and young. Some travelling lumberers assured me that the Coot breeds in numbers in the lakes lying between Mars Hill, in Maine, and the St. Lawrence river; but I can find no authentic accounts of its nest having been found in any part of the United States, although some probably breed on the borders of our northern lakes.

In Louisiana, this species is named *Poule d' Eau*, which is also applied to *Rallus crepitans*. In all other parts of the Union, it is known by the names of Mud Hen and Coot. The appellation of "Flusterers" given to it by Mr. LAWSON in his History of South Carolina, never came to my ear, during my visits to that State.

These birds are frequently caught in the nets placed across the bayous of the lakes in the neighbourhood of New Orleans, for the purpose of catching Blue-winged Teals and other Ducks. They come against them while flying, but if the hunter is not extremely quick they make their escape by nimbly scrambling up, using their bill and feet until they reach the outer part of the net, when they drop into the water like so many terrapins. At times they congregate in vast numbers, and swim so closely that a hunter in my employ, while on Lake Barataria, killed eighty at a single shot. They are extremely abundant in the New Orleans markets during the latter part of autumn and in winter, when the negroes and the poorer classes purchase them to make "gombo." In preparing them for cooking, they skin them like rabbits instead of plucking them.

Both old and young birds differ considerably in size and weight. The male, from which I drew the figure in the plate, was procured at General HERNANDEZ'S, in East Florida, and was among the best of about thirty shot on one of my excursions there.

COMMON COOT, *Fulica atra*, Wils. Amer. Orn., vol. ix. p. 61.

FULICA AMERICANA, Bonap. Syn., p. 338.

CINEREOUS COOT, Nutt. Man., vol. ii. p. 229.

AMERICAN COOT, *Fulica Americana*, Aud. Orn. Biog., vol. iii. p. 291; vol. v. p. 568.

Male, $13\frac{1}{2}$, 25.

From Texas to the northern parts of Maine. Exceedingly abundant in Louisiana and the Floridas, during winter and spring, where some remain to breed. The greater number breed in Maine and New Brunswick, as well as along the great lakes. Rare in the Middle Atlantic districts. Columbia river.

Adult male.

Bill about the same length as the head, stout, straight, compressed, higher

than broad at the base. Upper mandible with the dorsal line straight and slightly sloping, towards the end slightly arched and deflected, the ridge flattish at the base, and continuous with an oblong soft tumid plate which ascends on the forehead, the rest of the ridge convex; sides rapidly sloping, edges overlapping, sharp, with a slight notch close to the obtuse tip. Nasal groove wide, extending to two-thirds of the whole length of the mandible, filled with a soft bare membrane; nostrils linear, medial, lateral, direct, pervious. Lower mandible with the angle long, narrow, rounded, the dorsal line nearly straight, the sides flattish, the edges sharp.

Head small, oblong, much compressed. Neck of moderate length, slender. Body rather full, compressed. Feet of moderate length, strong; tibia bare a short way above the joint; tarsus rather short, compressed, broader below, anteriorly covered with broad scutella, laterally with angular scales, on the outer side behind a row of scutelliform scales; hind toe short, slender; middle toe longest, fourth longer than second; toes scutellate above, hind one with an inferior lobe, second with two larger inner and two smaller outer rounded lobes; third with three, fourth with four on each side; claws of moderate length, slightly arched, much compressed, acute, the middle one with a thin inner edge.

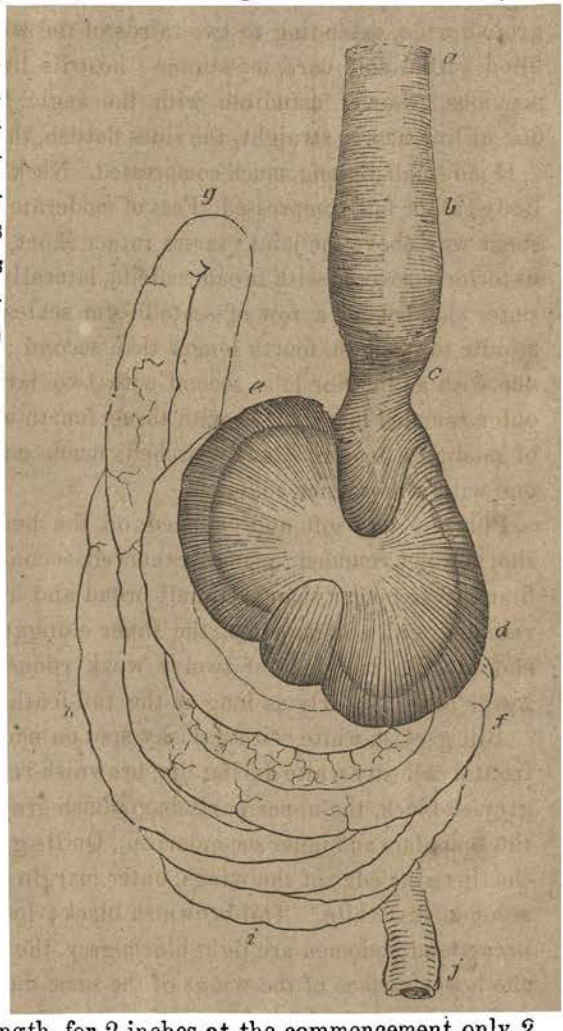
Plumage very soft and blended, on the head and neck short. Wings short, broad, rounded; primaries curved, second longest, third little shorter, first rather longer than sixth, all broad and rounded; secondaries broad, rounded with a minute tip, the inner elongated and tapering. Tail very short, much rounded, of twelve weak rounded feathers; the upper and lower coverts nearly as long as the tail-feathers.

Bill greyish-white, with a dusky spot on each mandible towards the end; frontal callosity white during life, brownish-red after death. Head and neck greyish-black, the upper parts deep bluish-grey, with an olivaceous tinge on the scapulars and inner secondaries. Quills greyish-brown, darker towards the tips; the edge of the wings, outer margin of first quill, and tips of outer secondaries, white. Tail brownish black; lower tail-coverts white. The breast and abdomen are light bluish-grey, the latter paler, the sides darker; the lower surface of the wings of the same dull leaden tint.

Length to end of tail $13\frac{9}{12}$ inches, to end of wings $14\frac{3}{12}$, to end of claws $18\frac{3}{4}$; extent of wings 25; wing from flexure $7\frac{1}{2}$; tail $2\frac{3}{4}$; bill along the back $1\frac{7}{12}$, along the edge of lower mandible $1\frac{5}{12}$; bare part of tibia $\frac{3}{4}$; tarsus 2; middle toe $2\frac{3}{12}$, its claw $\frac{7}{12}$. Weight 1 lb.

In an adult male preserved in spirits, the roof of the mouth is narrow, flattened, with two middle series of acute reversed papillæ, and two lateral elevated lines extending to the tip; the lower mandible deeply concave; the edges of both sharp, and the tips narrow but obtuse. The width of the

mouth is ½ inch. The tongue is fleshy, thick, 11 twelfths long, concave above, with the tip narrowed, but rounded. The œsophagus, *a b c*, is 8 inches long, of the uniform width of ½ inch; the proventriculus 9 twelfths in breadth. The stomach, *c d e*, is a very large, extremely muscular, transversely elliptical, oblique gizzard, 1½ inches long, 2 inches in breadth; its lateral muscles extremely developed, the right 10 twelfths, the left 1 inch in thickness; the tendons radiated, and covering nearly the whole surface; the inferior and superior muscles narrow and prominent. Its contents are sand and remains of shell-fish. The epithelium forms two large grinding plates, of which the right is concave, the left convex. The intestine, *e f g h i j*, is long and very wide; it first curves along the edge of the stomach to the distance of 4¼ inches, returns to the liver, runs along the right side to the extremity of the abdomen, is convoluted in an elliptical form, with 12 folds. Its length is 4 feet 8 inches, its width from ½ inch to 3½ twelfths, toward the rectum enlarging to ½ inch, and so continuing to the end. The cœca are extremely elongated, being 11 inches in length, for 2 inches at the commencement only 2 twelfths in width, afterwards 4 twelfths, and again contracting to 2 twelfths, toward the end, which is obtuse; their distance from the extremity 4 inches. There is no cloacal dilatation.



The extremely developed gizzard, with its large grinding surfaces, the very long and wide intestine, and the extraordinarily large cœca, together with the uniform undilated rectum, indicate the most direct proximity to

the Gallinaceous birds. The digestive organs, however, differ from those of the Rasores in one essential respect, namely, in there being no crop, or dilatation of the œsophagus. They are also very nearly allied to those of the Ducks, differing only in having the cœca proportionally larger. The *Anatinæ*, in fact, are in some respects aquatic *Gallinaceæ*.

The trachea is 6¼ inches long, from 4½ twelfths to 2 twelfths in breadth, flattened, with the rings feeble, until 1 inch from the lower extremity, when it becomes laterally compressed, with the rings much narrower. The number of these is 154. Bronchi very short, of 20 half rings, which are not ossified as in the Grebes, but cartilaginous. The rings of the trachea are narrowed in the middle, in front and behind, so as to be perfectly flexible there, as well as on either side. The lateral muscles are moderate. There are no inferior laryngeal muscles, excepting on each side a very thin slip going to the last ring.

I found this species very abundant in Texas, in May, 1837. It breeds in Maine and Massachusetts.

Genus III.—ORTYGOMETRA, *Leach.* CRAKE-GALLINULE.

Bill shorter than the head, rather stout, deep, compressed, tapering; upper mandible with the dorsal line nearly straight, being slightly convex toward the end, the ridge flattish for a short space at the base, very slightly extended on the forehead, narrow in the rest of its extent, the sides nearly erect, the edges sharp, with a slight sinus close to the rather obtuse tip; nasal groove broad and extending to two-thirds; lower mandible with the angle long and narrow, the dorsal line ascending, nearly straight, the sides erect, the tip narrowed. Nostrils linear, lateral, submedial. Head rather small, oblong, compressed; neck of moderate length; body rather slender, much compressed. Feet of moderate length, rather stout; tibia bare below; tarsus of ordinary length, compressed, with broad anterior scutella; hind toe short and slender, anterior toes very long, compressed scutella, the outer slightly longer than the inner. Claws of moderate length, slender, extremely compressed, tapering to a fine point. Plumage rather stiff, but blended; feathers of the forehead with the shaft enlarged. Wings short and broad, somewhat convex, the second quill longest. Tail extremely short, much rounded, of twelve weak feathers. Digestive organs as in Gallinula.

Sora Rail

1. Male. 2. Female 3. Young.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen Philad.a

THE SORA RAIL.

ORTYGOMETRA CAROLINUS, *Linn.*

PLATE CCCVI.—MALE, FEMALE, AND YOUNG.

Not many years have elapsed since it was supposed by some of the inhabitants of those districts to which thousands of this species of Rail resort at particular periods, that the Soras buried themselves in the mud at the approach of cold weather, for the purpose of there spending the winter in a state of torpidity. Many wonderful tales were circulated to convince the world of the truth of this alleged phenomenon; but the fact was, as you will naturally anticipate, that the birds merely shifted their quarters, as no doubt they will continue to do, so long as the climate becomes too cold for them in winter. Prior to the days of WILSON, very little indeed had been published respecting the habits of our birds. Superstitious notions and absurd fancies occupied the place of accurate knowledge in the minds of people too earnestly engaged in more important pursuits, to attend to the history of the animals around them; and with respect to the Sora in particular, I have no doubt that the settlers in our original forests cared very little about them, farther than that, when well cooked, they afforded a very savoury dish. Now, however, the case is very different. Many of the enterprising and industrious sons of Columbia have attained affluence and ease, and their children receive a liberal education. The sciences and arts, those attendants on peaceful commerce, are now sources of pleasure to many of our citizens, and at the present day there are not a few individuals among us, devotedly engaged in the pursuit of zoology in all its branches. So rapid has been the progress of ornithology in particular, that I should hesitate before asserting that any American, however uncultured, now believes that Rails burrow in the mud.

Those who have studied the habits of our birds, or of those of any part of the world, no longer admit that Swallows are condemned to search for warmth under the ice; for we have proofs that these birds can with ease obtain all that is necessary for their comfortable subsistence, by removing on wing to a warmer region. The Soras and many other species of birds are similar in this respect to the Swallows. The Vulture that was supposed to scent his food from afar, has well nigh lost his olfactory powers. Geese are no longer the offspring of sea-shells; nor do Swans now chaunt their own

requiem. The Pelican, too, has ceased to tear its own breast to gorge its voracious young. Students of nature have gradually rectified the various errors into which our ancestors had fallen; and we should now just as readily expect to see a shoal of fishes issuing from beneath the plough, as to see a flock of Rails emerge from the mud, shake themselves, and fly off. This subject, then, being disposed of, I have now to relate to you the result of my observations on the habits of the Sora.

This bird, which I think might have been named the Pennsylvanian or Virginian Rail, enters the Union from the shores of Mexico, early in March, when many are to be seen in the markets of New Orleans. Some reach their northern destination by ascending along the margins of our western streams, or by crossing the country directly, in the manner of the Woodcock; while those which proceed along the coast shorten their journey as much as possible by flying across the headlands of the numerous inlets or bays of our southern districts, retiring or advancing more slowly according to the state of the weather. Thus, those which cross the peninsula of Florida, through the marshes and lagoons that lead to the head waters of the St. John's River, instead of travelling round the shores of Georgia and South Carolina, fly directly across towards Cape Lookout. It is nevertheless true, that a certain number of these birds follow the sinuosities of the shores, for I found some in the markets of Charleston, in the month of April, that had been killed in the immediate neighbourhood of that city, and I obtained others in various parts; but the number of these is very small compared with that of those which cross at once. When their passage takes place, either during calm weather or with a favourable wind, the fortunate travellers pursue their journey by entering Pamlico Sound, and following the inner margins of the outward banks of this part of the coast until they reach Cape Henry. From thence some ascend the Chesapeake, while others make for the mouth of the Delaware, and these perhaps again meet on the borders of Lake Ontario, or the waters of the St. Lawrence, after which they soon enter those portions of the country in which they breed, and spend a short but agreeable season.

Every person acquainted with the general movements of birds either during spring, when they pass northwards, or the autumnal months, when they are on their way to milder climes, is aware that, at the former period, their anxiety to reach the place of breeding is much greater than that which they feel at any other period. Thus, in its movement southward, the Sora, like all other Rails, when returning with its progeny, which are yet feeble and unable to undergo much fatigue, proceeds considerably slower than in spring. Hence its appearance in autumn, in multitudes, in various places, where it is enticed by an abundance of food and comparative security, to

tarry for some time, and recruit its strength. Thus, in September and part of October, the Sora is found in great numbers on the borders of our great lakes, feeding on wild oats, and on the reedy margins of the rivers of our Middle Districts. Several natural causes prevent birds of this species from following the sea-coast of the United States, while migrating either in spring or in autumn, the principal of which is the absence there of their favourite Zizania marshes, which are but very rarely met with to the east of the State of New York. This is probably the cause of the great rarity of this species in Massachusetts, whilst, so far as I know, none are ever found to the eastward of that State. These observations are corroborated by those of my friend THOMAS MACCULLOCH, of Pictou, who never met with one of these birds during many years' residence in that part of Nova Scotia.

Having seen flocks of Soras winging their way close over the waters of the Gulf of Mexico, and between Cape Florida and the main shores of the Carolinas, in the month of April, when they were moving directly towards Cape Lookout, I have very little doubt that many return in the same track, in the end of October, when the young, well fed and strengthened, are able to follow their parents on wing, even across that large extent of water. I shall now dismiss this part of the subject, by adding, in confirmation of their capability of protracted flight, that some of these birds, when accidentally separated from their flock, have supported themselves on wing until they have met with vessels several hundred miles from land; and facts of this kind have been announced by persons of well known respectability.

During the autumnal months, a goodly number of Soras are found in the rice-fields and fresh-water marshes of the Carolinas. Sometimes also they have been shot in salt-water marshes, in spring, while on their northward migration. At this period they are very silent, until forced to fly. In those States none are seen during summer. Very few, it appears, remain in any part of the Middle Districts. My friend JOHN BACHMAN, however, was shewn some eggs of this bird, that had been found in the meadows below Philadelphia; and whilst I was in the company of my friend EDWARD HARRIS, Esq., on a Woodcock shooting expedition, my son shot some young birds scarcely fledged, and shortly afterwards an adult female. JOHN BACHMAN met with a nest on the shores of the Hudson, and I saw two in the marshes of Lake Champlain.

Fond of concealment, as all its tribe are, the Sora is rarely seen during day, although, being seminocturnal, it skulks amid the tall reeds or grasses, both by day and at night, in search of its food. Differing, however, in habit, as well as in form, from the Gallinules, it rarely abandons the retreats which it has chosen after the breeding season, and rises, when forced by tides, to the tops of the plants about it, climbing along or clinging to their stalks or

leaves, with as much ease as it walks on the floating garbage, when persons in boats can see them without any difficulty. Whenever these occurrences take place, and the country around is thickly peopled, great havoc is made among them. This particularly happens on the James and Delaware rivers, where thousands are annually destroyed during their autumnal stay. The sport of shooting Soras is much akin to that of shooting Clapper Rails, or Salt-water Marsh-hens. But WILSON having given an account of it, as pursued when Soras were much more abundant than I ever saw them, I shall transcribe his description of the manner adopted by the sportsmen on the Delaware.

"The usual method of shooting them, in this quarter of the country, is as follows:—The sportsman furnishes himself with a light batteau, and a stout experienced boatman, with a pole of twelve or fifteen feet long, thickened at the lower end to prevent it from sinking too deep into the mud. About two hours or so before high water, they enter the reeds, and each takes his post, the sportsman standing in the bow ready for action, the boatman, on the stern seat, pushing her steadily through the reeds. The Rail generally spring singly, as the boat advances, and at a short distance ahead, are instantly shot down, while the boatman, keeping his eye on the spot where the bird fell, directs the boat forward, and picks it up as the gunner is loading. It is also the boatman's business to keep a sharp look-out, and give the word 'mark!' when a Rail springs on either side without being observed by the sportsman, and to note the exact spot where it falls until he has picked it up; for this once lost sight of, owing to the sameness in the appearance of the reeds, is seldom found again. In this manner the boat moves steadily through and over the reeds, the birds flushing and falling, the gunner loading and firing, while the boatman is pushing and picking up. The sport continues till an hour or two after high water, when the shallowness of the water, and the strength and weight of the floating reeds, as also the backwardness of the game to spring as the tide decreases, oblige them to return. Several boats are sometimes within a short distance of each other, and a perpetual cracking of musketry prevails along the whole reedy shores of the river. In these excursions it is not uncommon for an active and expert marksman to kill ten or twelve dozen in a tide. They are usually shot singly, though I have known five killed at one discharge of a double-barrelled piece. These instances, however, are rare.

"Such is the mode of Rail shooting in the neighbourhood of Philadelphia. In Virginia, particularly along the shores of James river, within the tide water, where the Rail or Sora are in prodigious numbers, they are also shot on the wing, but more usually taken at night in the following manner:—A kind of iron grate is fixed on the top of a stout pole, which is placed like a

mast, in a light canoe, and filled with fire. The darker the night the more successful is the sport. The person who manages the canoe is provided with a light paddle, ten or twelve feet in length, and, about an hour before high water, proceeds through among the reeds, which lie broken and floating on the surface. The whole space, for a considerable way round the canoe, is completely enlightened, the birds stare with astonishment, and, as they appear, are knocked on the head with the paddle, and thrown into the canoe, In this manner, from twenty to eighty dozen have been killed by three negroes in the short space of three hours!"

The flight of this little bird while migrating is low, and performed with a constant beating of the wings, as in the Coot and other birds of its kind. They pass swiftly along in compact flocks from five to a hundred or more individuals. At times you see them rise in a long curve, as if they had perceived some dangerous object beneath them; then resume their ordinary direct flight, and are soon out of sight. On the contrary, when they are with us in autumn, they seem far from being alert on wing, flying slowly with dangling legs, and proceeding only to a short distance, when they drop among the reeds with their wings extended, as if they had been shot. If raised two or three times, it is extremely difficult to see them again; for on such occasions they will rather dive and hide under some floating weeds, keeping their bill only above the water. When walking leisurely, they throw up the tail, in the manner of Gallinules, and if they apprehend danger in consequence of any suspicious sight or sound, they run off with great speed. Their notes are shrill and short, but reiterated, like those of *Rallus crepitans*, although by no means so loud and disagreeable. When wounded they dive well at the approach of the sportsman, and sometimes cling to the roots of the grasses for a few moments, but more usually rise under the cover of the floating leaves. Some persons still believe that these birds cannot be drowned; and this notion tempted my friend JOHN BACHMAN to make the experiment. In a note of his now before me, he says:—"I once, in company with some naturalists of Philadelphia, tried two experiments upon two Soras that had been slightly wounded in the wing, to ascertain how long they could live under the water. They were placed in a covered basket, which was sunk in the river. One remained fifteen, the other eight minutes under water; and on being taken out, they were both found dead. We placed them in the sun for several days, but, I need hardly say, they did not revive."

The most curious habit or instinct of this species is the nicety of sense by which they can ascertain the last moment they can remain at any of the feeding grounds at which they tarry in autumn. One day, you may see or hear the Soras in their favourite marshes, you may be aware of their presence

in the dusk of evening ; but when you return to the place early next morning, they are all gone. Yesterday the weather was mild, to-day it is cold and raw ; and no doubt the Soras were aware that a change was at hand and secured themselves from its influence by a prompt movement under night. It is probable that these sudden removals gave rise to the idea of their diving into the mud.

RAIL, *Rallus carolinus*, Wils. Amer. Orn., vol. vi. p. 24.
RALLUS CAROLINUS, Bonap. Syn., p. 334.
CAROLINA RAIL, Nutt. Man., vol. ii. p. 208.
SORA RAIL, *Rallus carolinus*, Aud. Orn. Biog., vol. iii. p. 251 ; vol. v. p. 572.

Male, 9¾, 14.

Passes across the United States, both by the interior and along the coast Some breed in New Jersey. Rarely seen east of Massachusetts. Extremely abundant in autumn on the Delaware, and other streams or lakes furnished with wild oats. A few reside in Florida and Louisiana in winter.

Adult Male.

Bill shorter than the head, rather stout, deep, compressed, tapering. Upper mandible with the dorsal line nearly straight, being slightly convex towards the end, the ridge flattish for a very short space at the base, very slightly extended on the forehead, narrow in the rest of its extent ; the sides convex towards the end, the edges sharp, inflected, with a slight sinus close to the tip. Nasal groove broad and extending to two-thirds of the length of the bill ; nostrils linear, lateral, submedial, pervious. Lower mandible with the angle long and narrow, the sides erect, the dorsal line sloping upwards, the edges inflected, the tip narrowed, the gap-line straight.

Head rather small, oblong, compressed. Neck of moderate length. Body rather slender, much compressed. Feet of moderate length, rather stout ; tibia bare a short way above the joint ; tarsus of ordinary length, compressed, anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated. Hind toe very short and slender, middle toe longest and longer than the tarsus, fourth considerably shorter than third, and a little longer than second ; toes free, scutellate above, much compressed, with an inferior sharp margin. Claws rather long, exceedingly compressed, slightly arched, tapering to a fine point, flat and marginate beneath.

Plumage rather stiff, but blended, slightly glossed above. Feathers of the forehead with the shaft enlarged and slightly extended beyond the tip. Wings short and broad ; alula large ; primaries curved, broad, tapering, but rounded, second longest, third scarcely shorter, first equal to sixth ; secondaries broad and rounded. Tail extremely short, much rounded, of twelve

feeble rounded feathers; the upper and lower tail-coverts nearly as long as the tail-feathers.

Bill yellow at the base, dusky towards the end. Iris bright chestnut. Feet yellowish-green; claws light brown. A broad band surrounding the base of the bill, the central part of the crown, the chin, and the fore neck in its whole length, brownish black. Ear-coverts olive-brown; a band over the eye, the cheeks, and the sides of the neck, ash-grey. Sides of the crown, the hind neck, and the rest of the upper parts, olive-brown; the feathers brownish-black in the centre, those on the back with two marginal lines of white. Smaller wing-coverts of a lighter brown; secondary coverts margined with black and white markings; quills dusky olive-brown, as is the tail. Middle of breast and abdomen greyish-white; sides barred with brownish-black and greyish white, as are the lateral feathers of the rump, those of the abdomen reddish-yellow.

Length to end of tail $9\frac{3}{12}$ inches; to end of wings $8\frac{3}{4}$, to end of claws 12; extent of wings 14; wing from flexure $4\frac{8}{12}$; tail 2; bill along the ridge $\frac{10}{12}$, along the edge of the lower mandible $\frac{10}{12}$; tarsus $1\frac{3}{12}$; middle toe $1\frac{7}{12}$, its claw $\frac{4}{12}$. Weight 7 oz.

Adult Female.

The female differs considerably from the male in colouring. The naked parts and iris are similar, as are the upper parts generally; but the black around the base of the bill, on the head, and fore neck is wanting, the fore part of the head being light brown, the chin whitish, the sides of the neck light greyish-brown. The white lines of the back are duller, and the dark bands of the sides of a lighter tint.

Young Male.

The young male, after its first moult, is intermediate in colouring between the adult male and the female, but more like the latter, the black on the head and fore neck appearing in spots, and the sides of the neck being nearly as in the female.

YELLOW-BREASTED RAIL.

ORTYGOMETRA NOVEBORACENCIS, *Lath.*

PLATE CCCVII.—MALE.

The Prince of MUSIGNANO, who purchased one of these birds in the New York market in February, 1826, gave a figure of it, and considered it as an arctic species. This opinion, however, is incorrect, for the Yellow-breasted Rail is a constant resident in the Peninsula of the Floridas, as well as in the lower parts of Louisiana, where I have found it at all seasons. That a few straggling individuals should proceed northwards, advancing even to pretty high latitudes, is not much to be wondered at, as we have a similar case in the Common Gallinule. But at the season mentioned the individual referred to must have been forced thither by a storm, as no Rails of any kind are found in that part of the country in winter.

In the neighbourhood of New Orleans, this species is found in all the deserted savannahs, covered with thick long grass, and pools of shallow water. There you hear its sharp and curious notes many times in the course of the day, just as you hear those of *Rallus crepitans* near the sea-shore, more especially after the report of a gun, when they are louder and more quickly repeated. These sounds come on the ear so as to induce you to believe that a bird is near ; but whether this be the case or not is not easily determined, for when you move towards a spot in which you suppose it to be, the sounds recede at your approach, and you may think yourself fortunate if, after half an hour of search, you discover one on wing. Indeed, if we have a bird in America approaching in its habits the Corn Crake of Europe, it is the Yellow-breasted Rail : it also resembles in its habits the European Quail, a bird as fond at times of damp meadows bordering rivers as this species is wont to be, when it seeks for a place of safety in which to form its nest and rear its young.

In the Floridas, this bird is more abundant than even in Louisiana : and I met with it frequently in the course of my wanderings there, not only on the main land but also on several of the keys, where they begin breeding in March. On Sandy Island, near Cape Sable, I found several pairs, in May, 1832. About New Orleans it commences breeding at the same period. Dr. BACHMAN has procured specimens near Charleston. I have also found a few

Yellow-breasted Rail.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Adult Male in Spring.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

near Vincennes, on the Wabash river, in summer, when they had young broods. In the course of my stay at the Silver Springs in East Florida, I observed a good number of these birds along the margins of the lakes and swampy bayous, and had ample opportunities of assuring myself that this species is far from being nocturnal, as authors have alleged, at least when in places where they are under no apprehension of danger. In those sultry solitudes I have at times seen them following the margins of the muddy shores, with delicate and measured steps, until attracted by something worthy of their attention, when they suddenly jerked their tail upwards and for a moment disappeared. Again, they would gracefully leap upon the slender twigs of some low shrub or bush, apparently in search of small snails or other objects, jerking their tails at every movement. There it was that I again saw the extraordinary power of contraction which their body is able to assume while they are pushing forward between two or more stubborn branches. They were all so gentle that I at times approached within a few yards of them, when they would now and then look cunningly at me, rise more erect for a moment, and then resume their occupations.

When searched for by a dog, they seem as if determined to put him out by continual manœuvring, running and cutting backwards within a few yards of extent until the dog can no long follow the last trail. Just then they rise on wing, or run off to some other spot equally adapted for security. A friend of mine who resides in New Orleans, and has shot some hundreds of this species, told me that the best method of obtaining a shot is to lie concealed near an opening in the grass, and call the bird out of cover by imitating its notes, when in a few minutes, being extremely pugnacious, it comes to the clear space, and may be easily shot. Its flesh is delicate and savoury.

The nest somewhat resembles that of *Rallus elegans*. It is generally placed upon the ground in the centre of a thick tuft of grass, and the bed of it is at times elevated above the soil to the height of four or five inches. It is composed of weeds of various kinds, and is now and then covered over in the same manner as that of our Meadow Lark. The eggs are from eight to ten, pure white, thin-shelled, and measure $1\frac{1}{8}$ inches by nearly seven-eighths. The young are at first black, and are able to follow their parents almost immediately after birth. I am induced to believe that two, or perhaps three, broods are reared in the season.

The flight of this pretty little bird is rather swift, and more protracted than that of some of our Rails, especially when put up by a dog coming inadvertently upon it. At other times, when in places not frequented, it rises and removes to a distance rarely exceeding thirty or forty yards, falling as it were among the grass with wings stretched upwards and dangling legs. The gizzard is large and muscular, as in the Water-hen and our other Rails.

One which I opened was filled with minute fresh-water shell-fish and gravel. They feed also on insects of various kinds, and the seeds of grasses.

My friend THOMAS NUTTALL has so well described the notes of this bird, that I cannot do better than present you with his account of them. "On the 6th of October, 1831, having spent the night in a lodge, on the borders of Fresh Pond, employed for decoying and shooting Ducks, I heard, about sunrise, the Yellow-breasted Rails begin to stir among the reeds (*Arundo Phragmites*) that thickly skirt this retired border of the lake, and in which, among a host of various kinds of Blackbirds, they had for some time roosted every night. As soon as awake, they called out in an abrupt and cackling cry, *'krèk, 'krèk, 'krèk, 'krèk, 'kuk' k'kh*, which note, apparently from the young, was answered by the parent (probably the hen) in a lower soothing note. The whole of these uncouth and guttural notes have no bad resemblance to the croaking of the tree frog, as to sound. This call and answer, uttered every morning, is thus kept up for several minutes in various tones, till the whole family, separated for the night, have met and satisfactorily recognised each other."

I once shot a female bird of this species near New Orleans upon which I had nearly trodden as she was on the nest and about to lay an egg, and which she dropped as she flew before me, previously to my touching the trigger. In August and September I have found this species uncommonly fat, and most delicious. The difficulty of procuring them, however, renders them a rarity for the table even in those parts of the country where they are most abundant.

I have no doubt that a few stragglers now and then go far north to breed, as I find in the Fauna Boreali-Americana the following note from Mr. HUTCHINS's manuscripts :—"This elegant bird is an inhabitant of the marshes (on the coast of Hudson's Bay, near the efflux of Severn river, where Mr. HUTCHINS resided) from the middle of May to the end of September. It never flies above sixty yards at a time, but runs with great rapidity among the long grass near the shores. In the morning and evening it utters a note, which resembles the striking of a flint and steel; at other times it makes a shrieking noise. It builds no nest, but lays from ten to sixteen perfectly white eggs among the grass."

Now, this making no nest is to me a convincing proof that the species is not there in its natural place, but finding itself pushed for time, and yet obliged to breed, is contented to do so under unfavourable circumstances. Dr. RICHARDSON, who spent several years in the northern parts of America, did not meet with this species. I saw none in Labrador or Newfoundland; and in the British provinces of New Brunswick and Nova Scotia, the only bird of this family known is the Sora, *Ortygometra carolinus*.

Dr. TRUDEAU has favoured me with the following notice respecting this species:—"The Yellow-breasted Rail winters in the Southern States of the Union. It arrives in Louisiana in company with *Rallus* (*Ortygometra*) *jamaicensis*, about the end of October or the beginning of November. As well as that species it is very common in the marshes in the vicinity of the woods. It is a very difficult thing to force either of these two Rails to take flight; for if chased by a dog, they will only fly when the animal is near catching them. However, it is much easier to kill them at this season of the year than in the spring, in the Northern States. It is there I can say almost impossible to put them up. The reason of this is probably their attachment to their eggs or young ones. Some of them nestle in Louisiana. About the beginning of March, these two species begin to migrate northward. They are to be seen at Salem, in New Jersey, by the end of April. A few of the Yellow-breasts remain there, and a great number of the other species breed. I suppose that many proceed as far as Hudson's Bay."

RALLUS NOVEBORACENSIS, Bonap. Syn., p. 335.

RALLUS NOVEBORACENSIS, Bonap. Amer. Orn., vol. iv. p. 136.

YELLOW-BREASTED RAIL, *Rallus noveboracensis*, Swains. and Rich. F. Bor. Amer. vol. ii. p. 402.

YELLOW-BREASTED RAIL, Nutt. Man., vol. ii. p. 402.

YELLOW-BREASTED RAIL, *Rallus noveboracensis*, Aud. Orn. Biog., vol. iv. p. 251; vol. v. p. 574.

Male, 7¾, 12¼.

Common in Lower Louisiana and Florida, where it breeds. Stragglers go as far as Hudson's Bay. Occasionally met with far in the interior. Prefers fresh water.

Adult Male.

Bill shorter than the head, rather stout, compressed, tapering. Upper mandible with the dorsal line nearly straight, being slightly convex towards the end, the ridge narrow and convex in its whole length, the sides convex towards the end, the edges sharp, slightly overlapping, destitute of notch. Nasal groove broad, and extending to a little beyond the middle of the bill; nostrils linear, lateral, submedial, pervious. Lower mandible with the angle long and narrow, the sides erect, the dorsal line sloping upwards, the edges a little inflected, the tip narrowed, the gap-line straight.

Head rather small, oblong, compressed. Neck shortish. Body compact, deeper than broad. Feet of moderate length, rather stout; tibia bare a short way above the joint; tarsus of ordinary length, compressed, anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated. Hind toe small and very slender; middle toe longest, and

longer than the tarsus; inner toe considerably shorter than the outer; toes free, with numerous scutella above. Claws much compressed, slightly arched, tapering to a fine point, flat and marginate beneath.

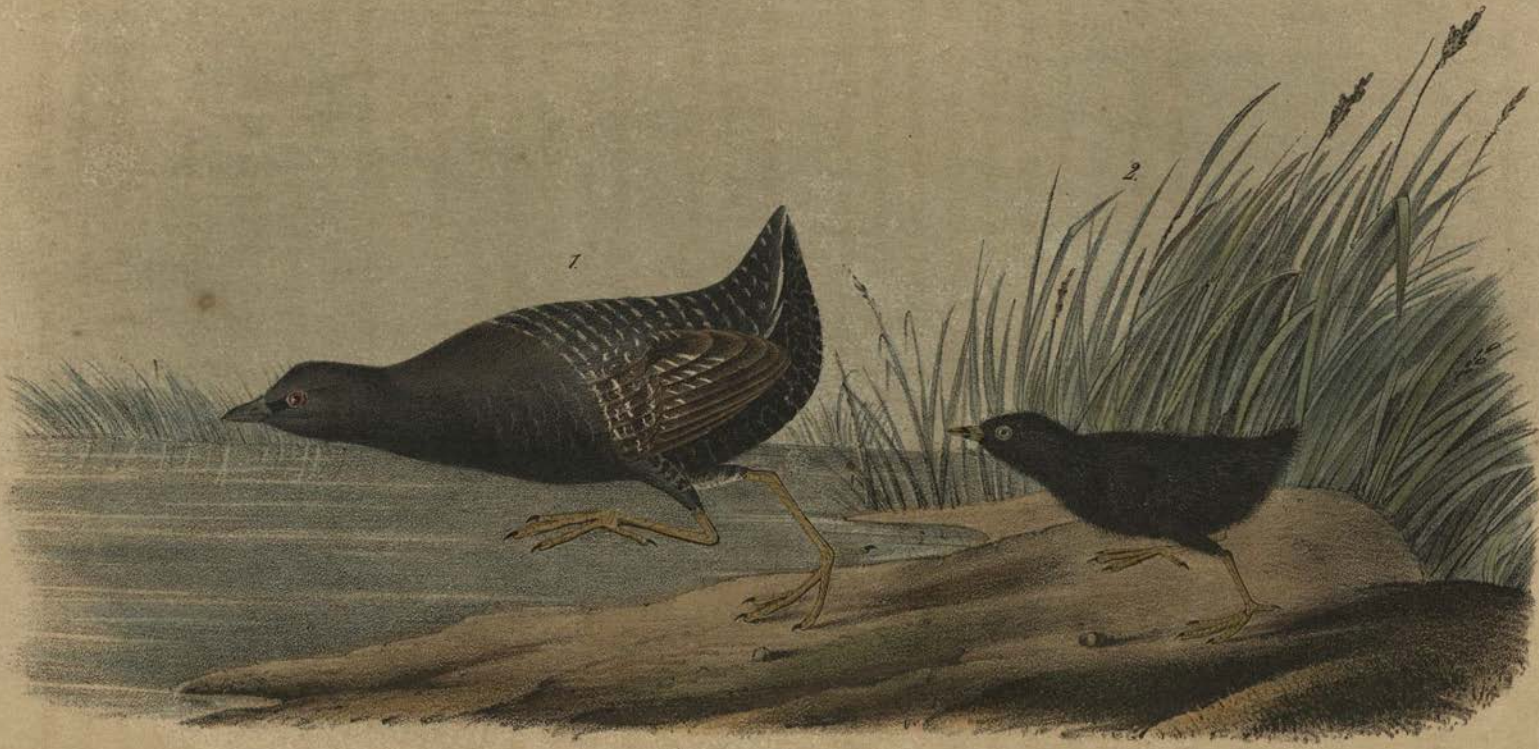
Plumage rather stiff, but soft, blended, and slightly glossed above. Feathers of the forehead somewhat bristly, broad and rounded; of the hind parts elongated. Wings short, broad, concave; alula large, primaries curved, broad, abruptly rounded, the second longest, third scarcely shorter, first equal to seventh; secondaries broad and rounded, the inner elongated, some of them extending a quarter of an inch beyond the longest primary. Tail extremely short, much rounded, of *ten* feeble rounded feathers; the upper and lower tail-coverts as long as the tail-feathers.

Bill greenish-black, with the base dull yellowish-orange. Iris hazel. Feet and claws light flesh-colour. Upper part of the head and hind neck blackish-brown, the feathers slightly edged with dull light brownish-red, those on the occiput and hind neck with a small white spot on the outer edge. The upper parts are brownish-black, longitudinally streaked with brownish-yellow, each feather being broadly margined with the latter, and crossed with from one to three narrow white bars. Alula greyish-brown, each feather with a white dot near the tip; primaries similar, the outer four unspotted; the edge of the wing, and the basal half of the outer web of the first primary yellowish-white; outer secondaries greyish-brown, white towards the end, three of them having that colour extending over more than half of their length; inner secondaries like the back, as are the tail-feathers. Loral space and a line beyond the eye blackish-brown. Sides of the head, neck, and anterior part of the body light brownish-red, each feather terminally margined with deep brown; sides like the back; axillaries, lower wing-coverts, and middle of the abdomen, pure white; sides of the rump like the back; lower tail-coverts brownish-red, with faint whitish dots.

Length to end of tail 7¾ inches, to end of claws 9¾, to end of wings 7; extent of wings 12¼; wing from flexure $3\frac{9}{12}$; tail $1\frac{4}{12}$; tarsus $\frac{11}{12}$; first toe and claw $\frac{5}{12}$; second toe $\frac{10}{12}$, its claw $\frac{3}{12}$; third toe $1\frac{1}{12}$; its claw $\frac{3\frac{1}{2}}{12}$; fourth toe $\frac{10\frac{1}{2}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$. Weight 2¾ oz.

The female is smaller than the male, but similar in colour.

Length to end of tail 6¾ inches, to end of claws 8¾; extent of wings 11. Weight 2 oz.



Least Water-Rail

Drawn from Nature by J.J.Audubon F.R.S.F.L.S.

1. Adult Male. 2. Young.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

LEAST WATER RAIL.

ORTYGOMETRA JAMAICENSIS, *Briss.*

PLATE CCCVIII.—MALE, FEMALE, AND YOUNG.

My knowledge of this pretty little species is altogether derived from TITIAN PEALE, Esq., of Philadelphia, by whom, in October, 1836, I was favoured with the following letter:—

"I herewith send you the 'Little Rail' of which we were speaking yesterday, and the letter of Dr. ROWAN which relates to it. The young died soon after I received them, but the old one lived with me until the 26th of July (four days after its capture), evincing considerable anxiety for the young as long as they lived. Both young and old partook sparingly of Indian meal and water, or bread and water, and soon became quite at home, and probably might have been domesticated, had they been properly accommodated.

"The most remarkable part of the history of this individual is, that after its death we should have discovered on dissection that it was a male, rendering it singularly curious that *he* should have suffered himself to be captured by hand while in defence of the young brood.

"There is now in the museum a specimen of this species, which has been in the collection for about thirty years, said to have been caught in the vicinity of the city. It stands labelled 'Little Rail, *Rallus minutus*, Turton's Linn;' but the authenticity of the specimen has always been disputed by BONAPARTE and others, because none else had been found; and the author just named expressed a belief that it was an immature specimen of *Rallus* (*Crex*) *Porzana* of Europe.

"I regret that I should have mislaid the measurements of the specimen when recent, if any were taken, and cannot lay my hands on them, or any thing more than the above notes. Respectfully yours, &c.

"TITIAN R. PEALE."

Inclosed in Mr PEALE's letter was the following note from Dr. ROWAN "to the Messrs. PEALES."

"On Saturday last I wrote to you of the Rail-bird breeding near this place. I then described one that I caught last summer, which was unlike the Rail in the fall season, and I presumed that all in the wet ground were

the same, but this day my men mowing around the pond started up two of the usual kind. The hen flew a few rods, and then flew back to her young in an instant, when they caught her, together with her four young, which I herewith send you. Many more can be caught. I have seen them in our meadow every month of the year, but they never make a great noise except when very fat on the wild oat's seed. From the above you will conclude that they do not migrate to the south, but breed here. Respectfully,

"THOMAS ROWAN."

RALLUS JAMAICENSIS, Briss Suppl., p. 140.
LEAST WATER RAIL, *Rallus jamaicensis*, Aud. Orn. Biog., vol. iv. p. 359.

Male, 6, wing, 3⅞.

From Louisiana to New Jersey, in fresh-water meadows and marshes, difficult of access. Migratory.

Adult Male.

Bill shorter than the head, rather stout, compressed, tapering. Upper mandible with the dorsal line nearly straight, being slightly convex toward the end, the ridge narrow and convex in its whole length, the sides convex towards the end, the edges sharp, the tip rather acute. Nasal groove extending to a little beyond the middle of the bill; nostrils linear, lateral, submedial, pervious. Lower mandible with the angle long and narrow, the sides erect, the dorsal line sloping upwards, the edges a little inflected, the tip narrowed, the gap-line straight.

Head rather small, oblong, compressed. Neck shortish. Body compact, deeper than broad. Feet of moderate length, rather slender; tibia bare a short way above the joint; tarsus of ordinary length, compressed, anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated. Hind toe small and very slender; middle toe longest, and longer than the tarsus; inner toe considerably shorter than the outer: toes free, with numerous scutella above. Claws of moderate length, compressed, slightly arched, acute.

Plumage blended, slightly glossy above. Wings short and broad, tapering, rounded, the first and second nearly equal and longest. Tail very short, much rounded, of twelve feeble rounded feathers; the upper and lower tail-coverts nearly as long as the tail-feathers.

Bill black. Iris red. Feet bright yellowish-green, claws dusky. The head and all the lower parts are very dark purplish-grey, on the upper part of the head approaching to black, on the fore part of the neck faintly undulated with paler, on the sides and hind parts barred with greyish-white; the lower wing-coverts barred with grey and white; the lower tail-coverts of the

latter colour. The hind neck and fore part of the back dark chestnut; the rest of the back and tail-coverts greyish-black, transversely barred with white. Wing-coverts and inner secondaries reddish-brown, with white spots; the other quills more dusky. The tail-feathers also reddish-brown, barred with dusky and marked with white spots.

Length to end of tail 6 inches; wing from flexure $3\frac{7}{8}$; tail $1\frac{1}{16}$; bill along the ridge $\frac{1}{2}$, along the edge of lower mandible $\frac{15}{16}$; bare part of tibia $\frac{1}{4}$; tarsus 1; hind toe and claw $\frac{1}{2}$; middle toe and claw 1, outer toe and claw $\frac{7}{8}$; inner toe and claw $\frac{5}{8}$.

Young a few days old.

While yet covered with down, the young is black all over; the bill bright yellow, with the point of the upper mandible, and a band across the middle of the lower, black; the feet dull yellowish-green, the claws dusky

Since the above was written, I have received a letter from my friend J. TRUDEAU, M. D., in which he says that his father shot a considerable number of these birds last winter in the vicinity of New Orleans.

GENUS IV.—RALLUS, *Linn.* RAIL.

Bill much longer than the head, slender, compressed, very slightly decurved, high at the base; upper mandible with the dorsal line almost straight, until towards the end, where it is slightly curved, the ridge a little flattened at the base, and extending slightly on the forehead, convex toward the end, nasal sinus forming a groove extending to two-thirds, the sides nearly erect, the edges slightly inflected, the notches very slight, the tip rather obtuse; lower mandible with the angle very long and extremely narrow, the dorsal line almost straight, the sides erect and a little convex, the edges involute, the tip narrowed but obtuse. Nostrils lateral, sub-basal, linear. Head small, oblong, much compressed; neck long and slender; body slender, much compressed. Feet long; tibia bare below; tarsus rather long, stout, compressed anteriorly, covered with broad scutella; hind toe very small and tender, fourth little longer than second, anterior toes very long, scutellate, compressed. Claws of moderate length, arched, slender, much compressed,

acute. Plumage rather stiff; feathers of the forehead with the shaft enlarged, and extended beyond the tip. Wings very short and broad; third quill longest. Tail very short, much rounded, of twelve feeble rounded feathers, scarcely longer than the coverts.

THE GREAT RED-BREASTED RAIL, OR FRESH-WATER MARSH-HEN.

RALLUS ELEGANS, *Aud.*

PLATE CCCIX.—MALE AND YOUNG.

No doubt exists in my mind that WILSON considered this beautiful bird as merely the adult of *Rallus crepitans*, the manners of which he described, as studied at Great Egg Harbour, in New Jersey, while he gave in his works the figure and colouring of the present species. My friend THOMAS NUTTALL has done the same, without, I apprehend, having seen the two birds together. Always unwilling to find faults in so ardent a student of nature as WILSON, I felt almost mortified when, after having in the company of my worthy and learned friend, the Reverend JOHN BACHMAN, carefully examined the habits of both species, which, in form and general appearance, are closely allied, I discovered the error which he had in this instance committed. Independently of the great difference as to size between the two species, there are circumstances connected with their habits which mark them as distinct. The *Rallus elegans* is altogether a fresh-water bird, while the *R. crepitans* never removes from the salt-water marshes that are met with along our eastern Atlantic coasts, from the Jerseys to the Gulf of Mexico. Nay, the present species is found at considerable distances inland, where it breeds and spends the whole year; whereas the latter never goes farther from its maritime haunts than the borders of the salt-marshes, and this merely on certain occasions, when driven thither by the high risings of tides. The Fresh-water Marsh-hen, besides, is confined to the Southern States, a few stragglers only having been observed farther eastward than the State of Pennsylvania, and these only in fresh-water meadows.

So long ago as the year 1810, on the 29th of May, I caught one of these birds, a female, at Henderson, in the State of Kentucky, when I made the

Great Red-breasted Rail, or fresh water Marsh Hen.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. 1. Male adult. 2. Young. Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

following memorandum respecting it:—"It is an excessively shy bird, runs with great celerity, and when caught, cries like a common fowl." It weighed eleven ounces avoirdupois; its total length was 20½ inches, and its alar extent 22.

This species constantly resides in the fresh-water marshes and ponds in the interior of South Carolina, Georgia, the Floridas, and Louisiana, from which a few migrate, and probably breed as far to the eastward as the wet meadows of the Delaware and Schuylkill rivers, in the vicinity of which I killed one female, in New Jersey, a few miles from Camden, in July, 1832, in company with my friends EDWARD HARRIS and Mr. OGDEN, of that city. On inquiring of numerous hunters, I was told by several of them that they now and then obtained a few of these birds, which they considered as very rare, and knew only by the name of "King Rails." On recently examining the museums of our eastern cities, my friend JOHN BACHMAN saw only one specimen; and Mr. WILLIAM COOPER of New York assured him that he had never seen any other individuals than those sent to him from Charleston. Mr. BACHMAN was present at the killing of a specimen near Philadelphia, which was *considered* as a very old individual of the *Rallus crepitans*. In Louisiana, the Creoles know this bird by the name of *Grand Râle de Prairie*.

As the Fresh-Water Marsh-hen is abundant in South Carolina, I shall attempt to describe its habits as observed in that State, both by myself and by my friend JOHN BACHMAN, of whose notes, delivered to me for the purpose, I shall make free use. "Although not nearly so numerous as the other species, they are not rare in that country, in certain favourable situations. Wherever there are extensive marshes by the sides of sluggish streams, where the bellowings of the alligator are heard at intervals, and the pipings of myriads of frogs fill the air, there is found the Fresh-water Marsh-hen, and there it may be seen gliding swiftly among the tangled rank grasses and aquatic weeds, or standing on the broad leaves of the yellow *cyamus* and fragrant *water-lily*, or forcing its way through the dense foliage of *pontederiæ* and *sagittariæ*. There, during the sickly season, it remains secure from the search of man, and there, on some hillock or little island of the marsh, it builds its nest. In such places I have found so many as twenty pairs breeding within a space having a diameter of thirty yards. The nests were placed *on the ground*, and raised to the height of six or eight inches by means of withered weeds and grasses. The number of eggs was nine or ten. About the middle of March I found a few nests containing two or three eggs each; but, in my opinion, the greater number of these birds commence breeding about the middle of April. They appear to repair

their nests from time to time, and return to them several years in succession."

The young, which are at first black, leave the nest as soon as they burst the shell, and follow their mother, who leads them along the borders of the streams and pools, where they find abundance of food, consisting of grass-seeds, insects, tadpoles, leeches, and small cray-fish. At this early period, when running among the grass, which they do with great activity, they may easily be mistaken for meadow-mice. My friend BACHMAN, who had several times attempted to raise these birds, with the view of domesticating them, did not succeed, principally, he thinks, on account of the difficulty of procuring enough of their accustomed food. They all died in a few days, although the greatest attention was paid to them.

When grown they feed on a variety of substances, and it has appeared to me that they eat a much greater proportion of seeds and other vegetable matters than the Salt-water Marsh-hens. It is true, however, that in the gizzard of the latter we find portions of the *Spartina glabra;* but when that kind of food is not to be procured, which is the case during three-fourths of the year, they feed principally on "fiddlers," small fish, and mollusca. In the gizzard of the present species, besides the food already mentioned, I have always found a much greater quantity of the seeds of such grasses as grow in the places frequented by them. On one occasion I found the gizzard crammed with seeds of the cane (*Arundo tecta*); and that of another contained a large quantity of the seed of the common oat, which had evidently been picked up on a newly sown field adjoining to the marsh. In autumn I have killed this species in corn-fields, in the company of JOHN BACHMAN, PAUL H. LEE, Esq. and others. These birds are rarely shot by common gunners, on account of the difficulty of raising them, and because they generally confine themselves to places so swampy and covered with briars, smilaxes, and rough weeds, that they are scarcely accessible. But although they are thus safe from man, they are not without numerous enemies.

My friend BACHMAN once killed a large moccasin snake, on opening which he found an old bird of this species, that had evidently been swallowed but a short time before. Its feathers are frequently found lying on the banks of rice-fields, ponds and lagoons, in places where the tracks of the mink plainly disclose the plunderer. The Barred Owl and the Great Horned Owl also occasionally succeed in capturing them in the dusk. "On one occasion," says my friend BACHMAN, in a note addressed to me, "while placed on a stand for deer, I saw a wild cat creeping through a marsh that was near to me, evidently following by stealthy steps something that he was desirous of making his prey. Presently he made a sudden pounce into a bunch of grass, when I immediately heard the piercing cries of the Marsh-

hen, and shortly after came passing by me the successful murderer with the bird in his mouth."

"In seasons of great drought, when the marshes which are their favourite haunts become dry, these birds have been known entirely to disappear from the neighbourhood, and not to return until after heavy rains, having in the mean time, no doubt, retired to the shores of the larger and deeper ponds of the swamps of the interior."

The young of this species acquire the redness of their plumage during the first summer, and increase in size and beauty for several years, without experiencing any change in their colouring after the spring following that of their birth. The sexes are scarcely distinguishable otherwise than by the difference of size, the males being considerably larger than the females. I am not aware that this species raises more than one brood in the season, although, when its eggs have been destroyed, it may lay a second time.

The flight of this Rail resembles that of the salt-water kind, but is considerably stronger and more protracted. When suddenly flushed, they rise and go off with a chuck, their legs dangling beneath, and generally proceed in a straight line for some distance, after which they drop among the thickest grass, and run off with surprising speed. In several instances they have been known to stand before a careful pointer. They are less apt to take to the water than the *Rallus crepitans*, and are by no means so expert at diving. Their number does not appear to be diminished in winter by any migratory movements. Their cries, which do not differ much from those of the other species, are less frequently repeated after the breeding season.

Few birds afford better food than this species: during autumn, when, feeding chiefly on grass seeds, they are juicy and tender; in spring, however, they are less delicate. Their superiority in size over all other birds of the genus that occur in the United States, renders them valuable game to the knowing sportsman and epicure. Their eggs also are excellent as food, being much preferable to those of the common fowl.

I regret that I am obliged to conclude this account, without being able to describe the eggs, which, although well known to my friend JOHN BACHMAN, have not yet come under my inspection.

GREAT RED-BREASTED RAIL, *Rallus elegans*, Aud. Orn. Biog., vol. iii. p. 27.

Male, 19, 25. Female, 18, 24.

From Texas to New Jersey, more common from Louisiana to North Carolina. Inland swamps and marshes. Once met with in Kentucky.

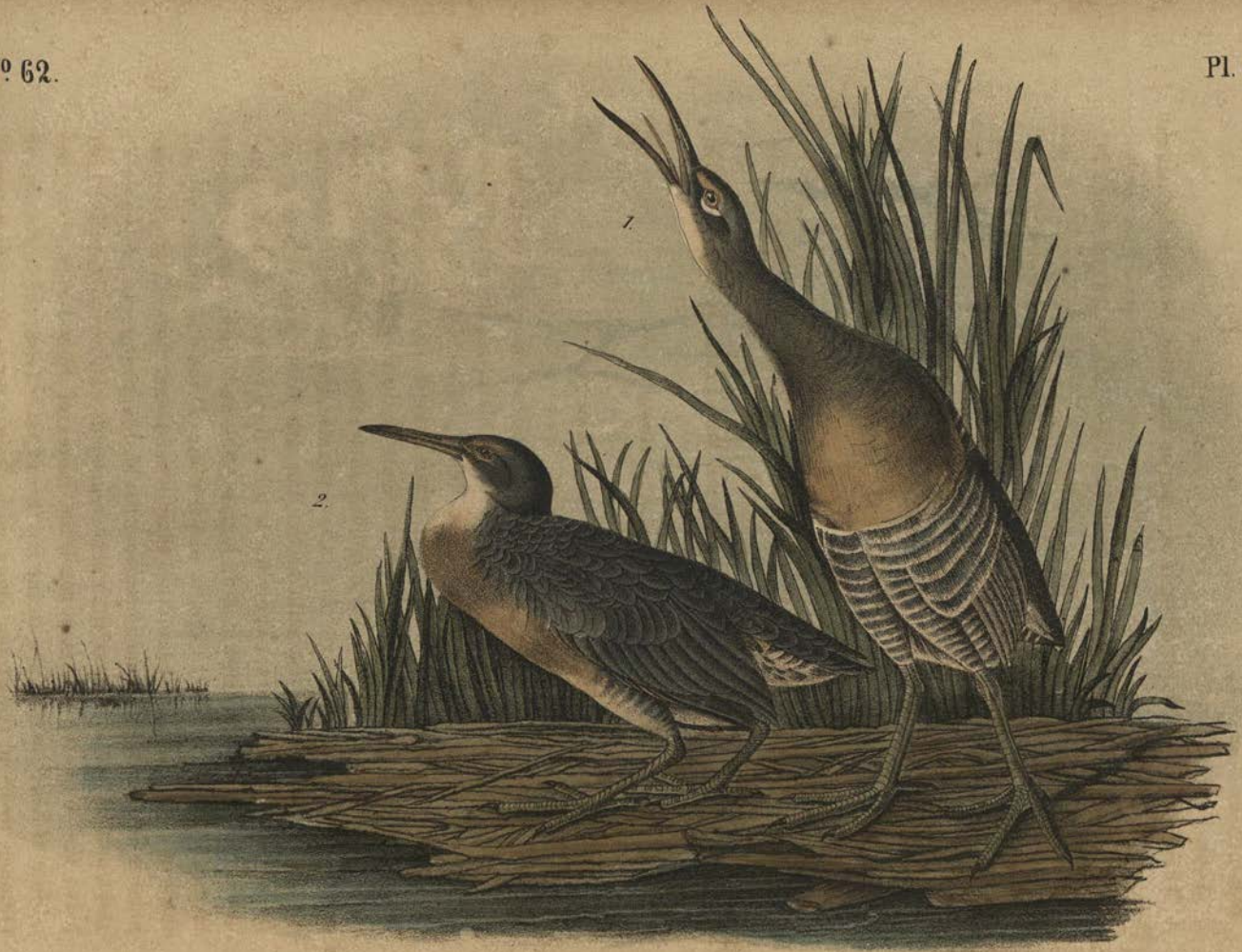
Adult Male.

Bill much longer than the head, slender, compressed, very slightly curved, deep at the base. Upper mandible with the dorsal line almost straight until towards the end, where it is slightly curved, the ridge flattish at the base, and extending a little on the forehead, convex towards the end ; a deep groove runs on either side parallel to the ridge for two-thirds of the whole length ; the edges inflected, with a very slight notch close to the tip. Nostrils lateral, linear, direct, open and pervious. Lower mandible with the angle very long, extremely narrow, the sides erect, slightly convex, the edges inflected, the tip narrowed.

Head small, oblong, much compressed. Neck long and slender. Body slender, much compressed. Feet long ; tibia bare a considerable way above the joint ; tarsus rather long, strong, compressed, anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated ; hind toe very small and slender, middle toe longest, fourth considerably shorter, and but little longer than the second ; toes free, scutellate above, compressed, granulate beneath ; claws of moderate length, arched, slender, much compressed, acute, flat, and marginate beneath.

Plumage rather stiff, compact and glossed on the upper parts. Feathers of the head and neck short and blended ; of the forehead with the shaft enlarged, and extended beyond the tip. Wings very short and broad ; alula large ; primaries curved, broad, tapering but obtuse, third longest, second scarcely shorter, first and seventh about equal ; secondaries weak, broad, rounded. Tail very short, much rounded, of twelve feeble rounded feathers ; the upper and lower coverts nearly as long as the tail-feathers.

Lower mandible and edges of upper brownish-yellow; ridge of upper, and tips of both, deep brown. Iris bright red. Feet yellowish-brown, tinged with olive ; claws of the same colour. Upper part of head and hind neck dull brown, the bristle-like shafts of the frontal feathers brownish-black ; a brownish-orange line from the bill over the eye ; a broader band of the same colour from the lower mandible, the intermediate space dusky; chin white. The upper parts in general are streaked with brownish-black and light olive-brown, the two sides of each feather being of the latter colour. Wing coverts dull chestnut, most of them irregularly tipped with brownish-white. Alula and primaries deep olive brown ; secondaries and tail-feathers like the back. Sides and fore part of the neck, and greater part of the breast, bright orange-brown ; sides and lower wing-coverts undulated with deep brown and greyish-white ; tibial feathers pale greyish-brown, faintly barred with darker, as is the hind part of the abdomen, the fore part being uniform pale greyish-brown ; lateral lower tail-coverts white, each with a blackish-brown spot near the end ; those in the middle barred with black and white.



Clapper Rail or Salt Water Marsh Hen?

Length to end of tail 19 inches, to end of claws 26, extent of wings 25 ; bill $2\frac{5}{6}$; tarsus $2\frac{1}{2}$, middle toe and claw $2\frac{1}{12}$; wing from flexure 7, tail $2\frac{1}{2}$. Weight 1 lb. 9 oz.

Adult Female.

The female, which is smaller, is similar to the male, but has the tints somewhat duller.

Length to end of tail 18 inches, to end of claws $22\frac{1}{2}$, extent of wings 24. Weight 1 lb. 2 oz.

Young in autumn.

The young in autumn and fully fledged resemble the female, but are duller in their colours.

THE CLAPPER RAIL, OR SALT-WATER MARSH-HEN.

RALLUS CREPITANS, *Gmel.*

PLATE CCCX.—MALE AND FEMALE.

Although this species is a constant resident, and extremely abundant along the salt-marshes and reedy sea-islands of South Carolina, Georgia, Florida, Alabama, and Louisiana, to the mouths of the Mississippi, and probably farther south, at all seasons of the year, it leaves these districts in considerable numbers in spring, and extends its movements along the Atlantic shores as far as the Middle States. They confine themselves entirely to the salt-marshes in the immediate vicinity of the Atlantic, the islands and the channels between them and the main shores, but are never seen inland or on fresh waters, unless when, during high tides, they remove to the margins of the main, where, indeed, during heavy gales and high seas, these poor birds are forced to take refuge, in order to escape the destructive fury of the tempest that, notwithstanding their utmost exertions, destroys great numbers of them. On all such occasions the birds appear greatly intimidated and stupified, and as if out of their proper element. Those individuals which leave the south for a season, reach the shores of New Jersey about the middle of April, and return to the Southern States about the beginning of October, to spend the winter along with their young, after which period

none are to be found in the Middle Districts. Few if any ever go beyond Long Island in the State of New York; at least I have never seen or heard of one farther east. Their migrations take place under night, and in perfect silence; but the moment they arrive at their destination, they announce their presence by a continuation of loud cacklings, meant no doubt as an expression of their joy. Having studied the habits of these interesting birds in the Jerseys, in South Carolina, and in the Floridas, on the maritime borders of all of which they breed, I shall here attempt to describe them.

In these countries, from about the beginning of March to that of April, the salt-marshes resound with the cries of the Clapper Rail, which resemble the syllables *cac, cac, cac, cac, cā, cāhā, cāhā.* The commencement of the cry, which is heard quite as frequently during day as by night, is extremely loud and rapid, its termination lower and protracted. At the report of a gun, when thousands of these birds instantaneously burst forth with their cries, you may imagine what an uproar they make. This bird seems to possess the power of ventriloquism, for, when several hundred yards off, its voice often seems to be issuing from the grass around you. At this period, the males are very pugnacious, and combats are rife until each has selected a female for the season. The males stand erect and cry aloud the least sound they hear, guard their mates, and continue faithfully to protect them until the young make their appearance. These come more under the care of the mother, who leads them about until they have attained a considerable size, and are able to shift for themselves. The nest is large, constructed of marsh plants, and fastened to the stems in the midst of the thickest tufts, above high-water mark. The materials of which it is formed are so well interlaced with the plants around them, as to prevent their being washed away by extraordinarily high tides, which, however, sometimes carry off and destroy the eggs, as well as many of the sitting birds, whose attachment to them is so great, that they are now and then drowned while endeavouring to keep them safe. The nest is very deep, so that the eggs seem placed in the bottom of a bowl or funnel. They are from eight to fifteen in number, measure an inch and a half in length by one and an eighth in breadth, and have a pale buff colour, sparingly sprinkled with light umber and purplish spots. The period of incubation is fourteen days. When undisturbed, this species lays only one set of eggs in the season; but as the eggs are in request as a delicious article of food, they are gathered in great numbers, and I myself have collected so many as seventy-two dozen in the course of a day. The nest is generally open at top, and then is very easily discovered, although sometimes the reeds are so arranged about them as to conceal them from the view. When the birds are sitting, they suffer you to approach within a few feet; but, as if aware of your intention, they glide away in silence to some

distance, and remained crouched among the grass until you have retired. When, on returning, the poor bird finds that her treasure has been stolen, she immediately proclaims her grief aloud, and in this is joined by her faithful mate. In a few days, however, more eggs are deposited, although, I believe, never in the same nest. This species may be called gregarious, yet the nests are seldom nearer to each other than five or ten yards. They are placed in the thickest and most elevated tufts of grass, principally near the edges of the many lagoons that everywhere intersect the sea marshes, so that a man may go from one to another, finding them with ease as he proceeds along the muddy shores. In the Jerseys, it forms almost a regular occupation to collect the eggs of this bird, and there I have seen twenty or more persons gathering them by thousands during the season; in fact, it is not an uncommon occurrence for an egger to carry home a hundred dozens in a day; and when this havoc is continued upwards of a month, you may imagine its extent. The abundance of the birds themselves is almost beyond belief; but if you suppose a series of salt-marshes twenty miles in length, and a mile in breadth, while at every eight or ten steps one or two birds may be met with, you may calculate their probable number.

During ebb, the Clapper Rail advances towards the edge of the waters as they recede, and searches, either among the grasses, or along the deep furrows made by the ebb and flow of the tides, for its food, which consists principally of small crabs, a species of salt-water snail attached to the rushes, the fry of fishes, aquatic insects, and plants. When the tide flows, they gradually return, and at high-water they resort to the banks, where they remain concealed until the waters begin to retreat. This species is by no means exclusively nocturnal, for it moves about in search of food during the whole of the day, in this respect resembling the Gallinules. Their courage is now and then brought to the test by the sudden approach of some of their winged enemies, such as a Hawk or an Owl, especially the Marsh Hawk, which is often attacked by them while sailing low over the grass in which they are commonly concealed. On such occasions, the Rail rises a few yards in the air, strikes at the marauder with bill and claws, screaming aloud all the while, and dives again among the grass, to the astonishment of the bird of prey, which usually moves off at full speed. They are not so fortunate in their encounters with such Hawks as pounce from on high on their prey, such as the Red-tailed and Red-shouldered Hawks, against which they have no chance of defending themselves. Minks, racoons, and wild cats destroy a great number of them during night, and many are devoured by turtles and ravenous fishes; but their worst enemy is man. My friend BACHMAN has shot so many as sixty in the course of four hours, and others have killed double that number in double the time.

The Salt-water Marsh-hen swims with considerable ease, though not swiftly or gracefully. While in this act, it extends its neck forward, and strikes the water with its feet, as if unwilling to move far at a time, the motion of its neck resembling that of the Gallinules. It dives well, remains a considerable time under water, and in this manner dexterously eludes its pursuers, although it certainly does not possess the power of holding fast to the bottom, as some persons have alleged. When hard pressed it often sinks just below the surface, keeping the bill above in order to breathe, and in this position, if not detected, remains for a considerable time. If perceived and approached, it instantly dives, and uses its wings to accelerate its progress, but rises as soon as it comes to a place of safety.

Their movements on the ground, or over the partially submersed or floating beds of weeds, are extremely rapid, and they run swiftly off before a dog, the utmost exertions of which are required to force them on wing. Such an attempt by man would prove utterly futile, unless he were to come upon them unawares. When not pursued, and feeling secure, they walk in a deliberate manner, the body considerably inclined, now and then jerking the tail upwards, although by no means so frequently as Gallinules are wont to do. On the least appearance of danger, they lower the head, stretch out the neck, and move off with incomparable speed, always in perfect silence. They have thousands of paths among the rank herbage, crossing each other so often that they can very easily escape pursuit; and besides, they have a power of compressing their body to such a degree, as frequently to force a passage between two stems so close, that one could hardly believe it possible for them to squeeze themselves through. When put up, they fly slowly and generally straight before you, with their legs dangling, so that they are very easily shot by a quick sportsman, as they rarely fly far at a time on such occasions, but prefer pitching down again into the first tuft of rank grass in their way. When on their migrations, however, they pass low and swiftly over the marshes, or the water, stretched to their full extent, and with a constant beat of the wings.

The young, which are at first covered with down of a black colour, obtain their full plumage before the winter arrives, and after this undergo little change of colour, although they increase in size for a year after. In the Eastern States, this species is not held in much estimation as an article of food, perhaps in a great measure on account of the quantity of Soras met with there during early autumn, and which are certainly more delicate; but in the Southern States, especially during winter, they are considered good for the table, and a great number are killed and offered for sale in the markets. Numbers are destroyed by torch light, which so dazzles their eyes, as to enable persons fond of the sport to knock them down with poles

or paddles during high tides. It is by day, however, that they are usually shot, and as this kind of sport is exceedingly pleasant, I will attempt to describe it.

About Charleston, in South Carolina, the shooting of Marsh-hens takes place from September to February, a few days in each month during the spring-tides. A light skiff or canoe is procured, the latter being much preferable, and paddled by one or two experienced persons, the sportsman standing in the bow, and his friend, if he has one with him, taking his station in the stern. At an early hour they proceed to the marshes, amid many boats containing parties on the same errand. There is no lack of shooting-grounds, for every creek of salt-water swarms with Marsh-hens. The sportsman who leads has already discharged his barrels, and on either side of his canoe a bird has fallen. As the boat moves swiftly towards them, more are raised, and although he may not be ready, the safety of the bird is in imminent jeopardy, for now from another bark double reports are heard in succession. The tide is advancing apace, the boats merely float along, and the birds, driven from place to place, seek in vain for safety. Here, on a floating mass of tangled weeds, stand a small group side by side. The gunner has marked them, and presently nearly the whole covey is prostrated. Now, onward to that great bunch of tall grass all the boats are seen to steer; shot after shot flies in rapid succession; dead and dying lie all around on the water; the terrified survivors are trying to save their lives by hurried flight; but their efforts are unavailing—one by one they fall, to rise no more. It is a sorrowful sight, after all: see that poor thing gasping hard in the agonies of death, its legs quivering with convulsive twitches, its bright eyes fading into glazed obscurity. In a few hours, hundreds have ceased to breathe the breath of life; hundreds that erst revelled in the joys of careless existence, but which can never behold their beloved marshes again. The cruel sportsman, covered with mud and mire, drenched to the skin by the splashing of the paddles, his face and hands besmeared with powder, stands amid the wreck which he has made, exultingly surveys his slaughtered heaps, and with joyous feelings returns home with a cargo of game more than enough for a family thrice as numerous as his own. How joyful must be the congratulations of those which have escaped, without injury to themselves or their relatives! With what pleasure, perhaps, have some of them observed the gun of one of their murderers, or the powder flask of another, fall overboard! How delighted have they been to see a canoe overturned by an awkward movement, and their enemies struggling to reach the shore, or sticking fast in the mud! Nor have the mink and racoon come off well, for notwithstanding the expertness of the former at diving, and the cunning of

the latter, many have been shot, and the boatmen intend to make caps of their fur.

In the Carolinas there are some most expert marksmen, of whom I know two who probably were never surpassed. One of them I have seen shoot fifty Marsh-hens at fifty successive shots, and the other, I am assured, has killed a hundred without missing one. I have heard or read of a French king, who, on starting a Partridge, could take a pinch of snuff, then point his gun, and shoot the bird; but whether this be true or not I cannot say, although I have witnessed as remarkable a feat, for I have seen a Carolinian, furnished with two guns, shoot at and kill four Marsh-hens as they flew off at once around him! On speaking once to a friend of the cruelty of destroying so many of these birds, he answered me as follows:—"It gives variety to life; it is good exercise, and in all cases affords a capital dinner, besides the pleasure I feel when sending a mess of Marsh-hens to a friend such as you."

CLAPPER RAIL, *Rallus crepitans*, Wils. Amer. Orn., vol. vii. p. 112; but not the figure, which is that of R. elegans.

CLAPPER RAIL, Nutt. Man., vol. ii. p. 201.

CLAPPER RAIL OR SALT-WATER MARSH-HEN, *Rallus crepitans*, Aud. Orn. Biog., vol. iii. p. 33; vol. v. p. 570.

Male, 15, 20¾. Female, 14, 19¼.

Exceedingly abundant from Texas to New Jersey, breeding in all salt-water marshes. Few proceed eastward beyond Long Island. Constantly resident from the Carolinas southward. Not inland.

Adult male.

Bill much longer than the head, slender, compressed, slightly curved, rather deep at the base. Upper mandible with the dorsal line almost straight until towards the end, where it is slightly curved, the ridge slightly flattened for a short space at the base, and extending a little on the forehead, narrow and convex to the end; a deep groove runs on either side parallel to the ridge for two-thirds of the whole length; the edges inflected, with a very slight notch close to the tip. Nostrils lateral, linear, direct, open, and pervious. Lower mandible with the angle very long, extremely narrow, the sides erect, slightly convex, the edges inflected, the tip narrowed.

Head small, oblong, much compressed. Neck long and slender. Body slender, much compressed. Feet long; tibia bare a considerable way above the joint; tarsus of moderate length, strong, compressed, and anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated. Hind toe very small and slender, middle toe longest, fourth considerably shorter, and but little longer than the second; toes free, scutel-

late above, compressed, granulate beneath. Claws of moderate length, arched, slender, much compressed, acute, flat, and marginate beneath.

Plumage rather stiff, compact, and glossed on the upper parts. Feathers of the head and neck short and blended, of the forehead with the shaft enlarged and extended beyond the tip. Wings very short and broad; alula large; primaries curved, broad, tapering, but obtuse, third longest, second scarcely shorter, first and seventh about equal; secondaries weak, broad, rounded. Tail extremely short, much rounded, of twelve feeble, rounded feathers; the upper and lower coverts nearly as long as the tail-feathers.

Lower mandible and edges of upper yellowish-brown; ridge of upper and tips of both deep brown. Iris pale yellow. Feet pale livid grey, tinged with orange about the tibio-tarsal joint; claws dusky. Upper part of the head and hind neck dull brown, the bristle-like shafts of the frontal feathers brownish-black; a pale brownish-orange line from the bill over the eye; loral space and sides of the head dull bluish-grey, the two sides of each feather being of the latter colour. Wing-coverts dull olive, tinged with grey, some of them with slight irregular whitish markings; alula and primaries olive-brown; secondaries and tail feathers like the back. Chin yellowish-white, edged on either side with pale yellowish-brown; sides and fore part of the neck bluish-grey, tinged more especially before with dull pale yellowish-brown; the fore part of the breast of the latter colour. Lower wing-covert, sides, hind part of abdomen, and middle lower tail-coverts, undulated with deep greyish-brown and greyish-white, lateral tail-coverts with the outer webs white; tibial feathers similarly barred, but paler, middle of the abdomen greyish-white.

Length to end of tail 15 inches, to end of claws 20, extent of wings 20$\frac{3}{4}$; bill $\frac{5}{6}$; tarsus 2, middle toe and claw 2$\frac{5}{12}$; wing from flexure 6$\frac{2}{12}$; tail 2$\frac{5}{8}$. Weight 11 oz.

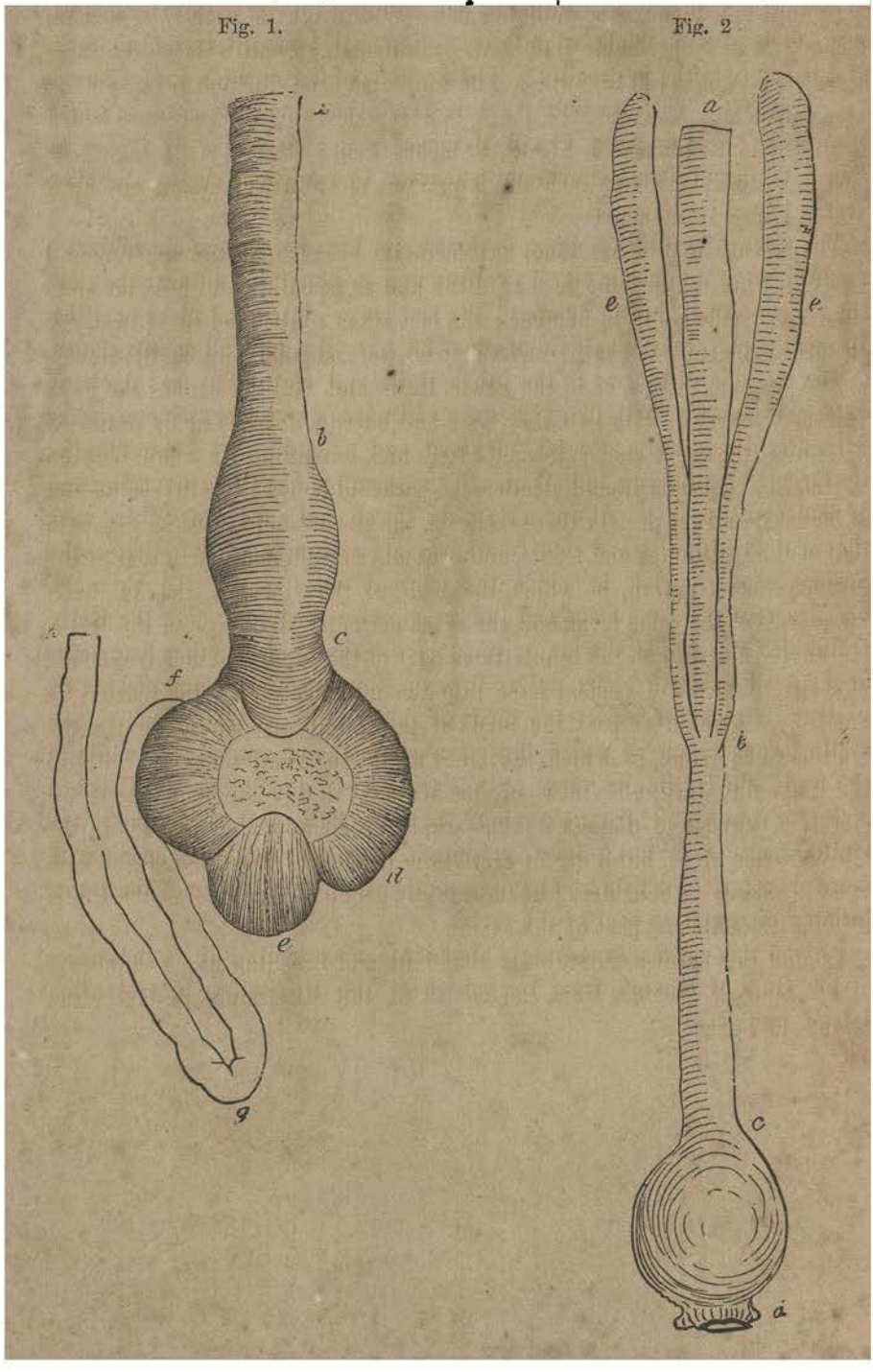
Adult Female.

The female, which is smaller than the male, is similar in colouring, but has the tints somewhat duller.

Length to end of tail 14 inches, to end of claws 17$\frac{3}{4}$; extent of wings 19$\frac{1}{4}$. Weight 7$\frac{3}{4}$ oz.

In an adult male of this species preserved in spirits, the anterior part of the roof of the mouth has a prominent median ridge, and two deep grooves. The tongue is very long, remarkably slender, trigonal, canaliculate, tapering to a bristly point, its base emarginate and papillate, its length 1 inch 11 twelfths. The width of the mouth is only 4 twelfths. The œsophagus, Fig. 1, *a b c*, is 8 inches long, narrow in its upper third, where its width is four twelfths, enlarging a little at the lower part. The breadth of the proventriculus is 9 twelfths. The lobes of the liver are very unequal, the right

being 2 inches 10 twelfths, the left 2 inches in length. The stomach, *c d e*, is a remarkably muscular gizzard of a roundish form, 1½ inches long, and of



about the same breadth ; its lateral muscles very prominent, the left large, the inferior muscle well pronounced ; the epithelium dense, hard, of a bright red colour, and forming two oblong flat grinding plates, with intermediate rugæ. The proventricular glands are cylindrical, 1 twelfth in length, forming a belt 9 twelfths in breadth. The contents of the stomach are fragments of small shells. The intestine, *f g h*, is 31½ inches long ; its average width 4½ twelfths ; rectum, *b c d*, Fig. 2, 3 inches long ; cœca, *b e*, 3¼ inches in length, their width for an inch and a quarter, 1½ twelfths ; cloaca globular, nearly 1 inch in diameter.

The trachea is 6 inches long, flattened, its breadth at the upper part 4 twelfths, soon diminishing to 3 twelfths, and so remaining to near the end ; the rings ossified, 145 in number ; the last rings contracted to 1½ twelfths. Bronchi moderate, the half rings about 20, very slender and cartilaginous.

The sternum in this, as in the other Rails and Gallinules, has the body extremely narrow, with two very deep and narrow notches at its posterior extremity, the crest moderately elevated, and extending its whole length ; the furcula very narrow and slender, the coracoid bones little diverging and of moderate strength. In these respects, the sternal apparatus agrees with that of the Gallinules and Coots, and presents a strong affinity to that of the Scolopaceous Courlan, in which the body of the sternum, though much broader, is of the same form, and the crest perfectly similar. In the Rails, Gallinules, and Coots, the innutritious part of the food, whether fragments of shells, or husks of seeds, passes into the intestine, not being ejected by vomiting, in which respect the birds of this family are analogous to the Gallinaceous group, of which the cœca attain the maximum size, while in the Rails and Gallinules these organs are next in development. It is not merely a vague and distant analogy that the *Rallinæ* thus present to the Gallinaceous birds, but a direct gradation, insomuch that they might with more propriety be considered as the aquatic group of the Rasores, the Coots forming the extreme part of the series.

I found this species exceedingly abundant, and breeding along the shores of the Gulf of Mexico, from the mouth of the Mississippi to Galveston Island, in Texas.

THE VIRGINIAN RAIL

RALLUS VIRGINIANUS, *Linn.*

PLATE CCCXI.—MALE, FEMALE, AND YOUNG.

This species, which, although smaller, bears a great resemblance to the Great Red-breasted Rail or Fresh-water Marsh-hen, is met with in most parts of the United States at different seasons. Many spend the winter within our southern limits, and I have found them at that time in Lower Louisiana, the Floridas, Georgia, and the Carolinas. In the western country some have been known to remain until severe frost came on, and there they usually stay to a much later period than in our Middle Districts, from which they generally retire southward in the beginning of October. During spring and summer, I observed some in different places from the shores of the Wabash river in Illinois, to those of the St. John's in the British province of New Brunswick. In the latter district, they were considered extremely rare birds by the inhabitants, some of whom brought me a few as great curiosities. Farther north, I neither saw nor heard of any; but on the borders of Lakes Erie and Michigan, they breed in considerable numbers, as well as near our maritime districts.

In its habits the *Rallus virginianus* is intermediate between the *R. crepitans* and *Ortygometra carolinus*: it obtains its food as well *in salt-water marshes* as in fresh meadows, watery savannahs, and the borders of ponds and rivers. The latter situations, however, seem to suit it best during summer; but whenever both kinds of places are combined, or near each other, there you are sure to meet with it.

The time of breeding varies according to the latitude of the place. I have found the female sitting on her eggs in the beginning of March, a few miles from New Orleans; in Kentucky, near Henderson, in April; about a fortnight later near Vincennes, in Illinois; and from the 10th of May to the middle of June, in the Middle and Eastern States. The males usually arrive at the breeding-places a week or ten days before the females. They travel silently and by night, as I have ascertained by observing them proceed singly and in a direct course, at a height of only a few feet, over our broad rivers, or over level land, when their speed is such as is never manifested by them under ordinary circumstances. Their movements can be easily traced for fifty yards or so during nights of brilliant moonshine, when you

Virginian Rail.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. 1. Male. 2. Female 3. Young. Lith.d Printed & Col.d by J.T.Bowen, Phila.d

see them passing with a constant beat of the wings, in the manner of a Green-winged Teal. As soon as they arrive at their destination, they may be heard emitting their cries about sunset, occasionally through the night, and again with increased vigour at the dawn of day, as if expressing their impatience for the arrival of their companions. The love-notes of this species have some resemblance to those of the Clapper Rail, but now and then are changed for others something like *crek, crek, creek,* or *creek, creek, creek.* Being expert ventriloquists, like their congeners, they sometimes seem to be far off, when in fact they are within a few yards of you. One morning I had the good fortune to witness their amatory gestures, which I will here try to describe, that you may in some degree participate in the amusement which the scene afforded me.

The sun had scarcely begun to send his horizontal rays over the lake, on the margin of which I stood, revolving in my mind the many enjoyments which the Author of nature has benignantly accorded to his creatures. The air was clear and serene, and the waters spread before me without a ruffle on their surface. The notes of the Rail came loudly on my ear, and on moving towards the spot whence they proceeded, I observed the bird exhibiting the full ardour of his passion. Now with open wings raised over its body, it ran around its beloved, opening and flirting its tail with singular speed. Each time it passed before her, it would pause for a moment, raise itself to the full stretch of its body and legs, and bow to her with all the grace of a well-bred suitor of our own species. The female also bowed in recognition, and at last, as the male came nearer and nearer in his circuits, yielded to his wishes, on which the pair flew off in the manner of house-pigeons, sailing and balancing their bodies on open wings until out of sight. During this exhibition, the male emitted a mellow note, resembling the syllables *cuckoe, cuckoe,* to which the female responded with the kind of lisping sound uttered by young birds of the species when newly hatched.

Excepting our Little Partridge, I know no small bird so swift of foot as the Virginian Rail. In fact, I doubt if it would be an easy matter for an active man to outstrip one of them on plain ground; and to trust to one's speed for raising one among the thick herbage to which they usually resort, would certainly prove fallacious. There they run to a short distance, then tack about, and again scud away in a lateral direction, so as to elude the best dog, or if likely to be overtaken, rise on wing, fly with dangling legs eight or ten yards, drop among the weeds, and run off as swiftly as before. Notwithstanding all this, I managed to secure a good number of them by means of a partridge net, setting the wings of that apparatus at very obtuse angles, and calling them by imitating the lisping notes of the female from some distance beyond the bag of the net. Now and then I found them too

cunning for me, as, on discovering that the wings of the net were in their way, they would get over it in the same manner as that in which a sailor mounts the shrouds of a ship. Our Common Coot uses the same artifice.

The nest of the Virginian Rail is not easily found after incubation has commenced, for then the male, contrary to the habits of most birds, becomes comparatively silent, and the female quite mute. At such times I have once or twice almost trodden on one, which I should never have discovered, had not the poor bird fluttered off in despair, employing all the artifices used by other species on such occasions. It is placed on a small elevation formed by the accumulation of the stalks of a large bunch of grasses, in the centre of which some dry weeds are arranged to the height of two or three inches, with a very shallow cavity. The eggs are four or five, seldom more than six or seven, and resemble in colour those of the *Rallus crepitans*, although smaller, measuring an inch and a quarter in length, by eleven-twelfths in breadth, and being rather more rounded. The young are covered with a jet black down, and run after their mother as soon as they make their escape from the egg;—at least I suppose this to be the case, on account of my having caught some that seemed newly hatched. The mother leads them with the greatest care among the long grass of the damp meadows, or the weeds growing near the ponds, to which they resort at all times, and particularly near the margins of pools or muddy streams, into which they run and disperse on the last appearance of danger. When no water is near, the little ones squat in silence, and await the call of their parent, to which all at once answer, when they quickly collect once more around her.

This species is able to cling to, and climb along the blades of tall grasses, even under water, when in danger, and is equally able to swim gracefully to a considerable distance, as to alight on low bushes, in which situation I have shot a few of them. When amid the broad leaves of water-lilies, they walk and run on them with as much ease as the Gallinules. When pursued, the Virginian Rail is, with great difficulty, put up, as I have already mentioned, but when it is once on wing it may be shot by a very ordinary gunner. It rises without noise, flies off with its legs dangling and its neck stretched out, but seldom proceeds farther than twenty or thirty yards at a time, unless when it has a stream to cross, or during its migrations. Like all the other species with which I am acquainted, it feeds both by day and by night. Its food consists of small slugs, snails, aquatic insects, worms, crustacea, and the seeds of those grasses which grow in salt or fresh water marshes, in either of which they reside and even breed. I have not been able to ascertain whether they lay more than once in the season; but, on account of the comparatively small number of this species, I am inclined to suppose that they

seldom raise more than one brood, unless their eggs have been destroyed, whether by inundation or otherwise.

The Virginian Rail is not without enemies; and, although it manifests a good deal of courage, and at times acts towards the Marsh Hawk in the same manner as the *Rallus crepitans*, it seldom succeeds in its attempts, and on several occasions I have seen that bird seize them as they attempted to strike it with their bill and claws for the purpose of driving it away. The minx, the garfish, the snapping-turtle, and sometimes eels, destroy them, as well as the Sora Rail.

Whilst at Charleston, in South Carolina, I frequently saw little strings of these birds exposed in the market, at a very low price; and they are excellent eating during autumn and winter. Their comparative scarcity, however, prevents the gunner from searching after them with the same eagerness as he pursues the *Rallus crepitans*, and to shoot a dozen in the course of a day may be considered a remarkable feat. In that country, during the latter part of autumn, and in winter, they are usually met with in the salt-marshes bordering the estuaries of large rivers.

Like the two preceding species, the Virginian Rail has the power of contracting its body to enable it to pass with more ease between the stalks of strong grasses or other plants. When observed unseen, it frequently jerks the tail upwards, in the manner of Gallinules, but the moment it notices any one of its enemies, it droops the tail, lowers its head, and runs off with the quickness of thought.

The young of this species are at first of a black colour, like that of *Rallus crepitans* and *R. elegans;* but, like those of the latter, attain the rufous hue of the parent birds before the commencement of winter, although they increase in size and improve in the depth of their tints probably for several years.

Virginian Rail, *Rallus virginianus*, Wils. Amer. Orn., vol. vii. p. 109.

Rallus virginianus, Bonap. Syn., p. 334.

Lesser Clapper Rail, Nutt. Man., vol. ii. p. 205.

Virginian Rail, *Rallus virginianus*, Aud. Orn. Biog., vol. iii. p. 41; vol. v. p. 573.

Male, 10½, 14¼. Female, 9¾.

Distributed through the country, and along the Atlantic shores, from Texas to New Brunswick and Nova Scotia; breeding in all the districts. Frequents fresh and salt water. Returns southward in autumn, when great numbers spend the winter from Carolina to Louisiana.

Adult Male.

Bill longer than the head, slender, compressed, slightly curved, deep at

the base. Upper mandible with the dorsal line slightly curved, the ridge flattish at the base, and extending a little on the forehead, convex and narrow towards the end; a deep groove runs on either side parallel to the ridge for two-thirds of the whole length; the edges inflected, with a very slight notch close to the tip. Nostrils lateral, linear, direct, open and pervious. Lower mandible with the angle very long, extremely narrow, the sides erect, slightly convex, the edges inflected, the tip narrowed, the lorsal and marginal outlines slightly arched.

Head rather small, oblong, compressed. Neck rather long. Body slender, much compressed. Feet rather long; tibia bare a considerable way above the joint; tarsus of ordinary length, compressed, anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated. Hind toe very small and slender, middle toe longest, fourth considerably shorter, and but little longer than the second; toes free, scutellate above, compressed, granulate beneath. Claws of moderate length, arched, slender, much compressed, acute, flat, and marginate beneath.

Plumage rather stiff, compact, slightly glossed on the back. Feathers of the head and neck short and blended; of the forehead with the shaft enlarged and extended beyond the tip. Wings very short and broad; alula large; primaries curved, broad, tapering, but obtuse, third longest, second very little shorter, first and sixth about equal; secondaries broad and rounded. Tail extremely short, much rounded, of twelve feeble rounded feathers; the upper and lower tail-coverts nearly as long as the tail-feathers.

Bill dark brown, the lower mandible and edges of upper yellowish-brown. Iris bright red. Feet yellowish-brown, tinged with olive; claws more dusky. The general colour of the upper parts is deep brownish-black, with streaks of light olive-brown; sides of the head dull bluish-grey, loral space of a deeper tint; a brownish orange line over the eye. Alula, primary quills, and tail, blackish-brown; secondary quills like the back, but edged with greenish-brown, smaller coverts dark chestnut. Throat reddish-white; fore neck and breast bright orange-brown, approaching to yellowish-red; sides, abdomen, and lower-wing coverts barred with brownish-black and white, the bands of the latter narrower; tibial feathers dusky anteriorly, light reddish behind. Lower tail-coverts each with a central brownish-black spot, the edges white, the tips pale reddish.

Length to end of tail 10½ inches, to end of claws 13, extent of wings 14¾; bill $1\frac{7}{12}$; tarsus $1\frac{5}{12}$, middle toe and claw $1\frac{9}{12}$; wing from flexure 4½, tail $1\frac{10}{12}$.

Adult Female.

The female is considerably smaller than the male, but resembles it in colouring, only the dark tints of the upper parts are lighter, the chestnut of the wings paler, and the lower parts of a less bright red.

Length 9¼.

Young bird fledged.

When fully fledged the young does not differ materially in colour from the old, the tints being merely somewhat duller.

In colouring, this species is so nearly allied to *R. elegans*, that the description of the one might pass very well for that of the other; the principal difference being that the sides of the head are grey in the former, and dusky in the latter. Of course, the difference in size and habits is sufficient to prevent their being confounded together.

In an adult male, the width of the mouth is only 3 twelfths; on the palate are two papillate ridges, then anteriorly a single series of strong reversed papillæ, and towards the end a median ridge. The tongue is 1 inch 2 twelfths in length, very slender, broadly channelled above in its whole length, horny beneath, the tip narrow, thin-edged, and slightly slit. The œsophagus is 3 inches 10 twelfths long, 3 twelfths in width; the proventriculus ovate, 3½ twelfths in breadth. The stomach is of moderate size, 10 twelfths long, 11 twelfths broad; its lateral muscles very large, as are the tendons, the lower muscle prominent; the epithelium dense, bright red, with numerous longitudinal rugæ, being thus less adapted for grinding than that of the Sora Rail. The contents are numerous fragments of small shells, and remains of insects. The lobes of the liver are very unequal, the left 1 inch, the right 1½ inches in length. The intestine is 18 inches long, its average width 2½ twelfths; the cœca 1 inch 7 twelfths long, 2½ twelfths in width, rounded at the end, 1 inch 10 twelfths from the extremity; the cloaca globular, 10 twelfths in diameter.

The trachea is 3 inches long, much flattened, from 1½ twelfths to 1 twelfth in breadth; the rings feeble, divided as in the Sora Rail, and 120 in number; bronchi moderate, of 15 half rings.

This species also I found in Texas, and from thence to the mouths of the Mississippi.

Genus V.—ARAMUS, *Vieill.* COURLAN.

Bill long, being double the length of the head, rather slender, but strong, much compressed, straight, its breadth less before the nostrils than towards the point; upper mandible with the dorsal line straight until towards the end, then slightly arcuato-declinate, the ridge convex in its whole length, the sides nearly erect, more convex toward the extremity, the tip blunted, the edges broad and obtuse for half their length, sharp but thick in the rest of their extent; lower mandible slightly ascending at the base, then direct, much compressed toward the tip, which is acute, the angle long and very narrow, the dorsal line slightly convex, the edges obtuse, becoming sharp towards the end; nasal groove nearly half the length of the bill. Nostrils direct, linear, long. Head rather small, oblong, compressed; neck long and slender; body ovato-oblong, much compressed. Feet very long, rather stout; tibia bare in its lower half; tarsus long, compressed, anteriorly broadly scutellate; toes long, rather slender; hind toe small; fourth considerably longer than second; anterior toes divided to the base, scutellate. Claws of moderate length, very slightly arched, compressed, tapering to a point. Plumage rather compact above, blended beneath. Wings of moderate length, very broad, concave, rounded; first short, falciform, with the inner web broader toward the end; fourth quill longest; inner secondaries much elongated. Tail short, broad, convex, rounded, of twelve broad rounded feathers. Digestive organs as in the Rails and Gallinules.

Scolopaceous Courlan?

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen. Phila.a

SCOLOPACEOUS COURLAN.

ARAMUS SCOLOPACEUS, *Vieill.*

PLATE CCCXII.—MALE.

This very remarkable bird appears to be entirely confined to that section of the Peninsula of Florida known by the name of "Everglades," and the swampy borders of the many bayous and lagoons issuing from that great morass. Few are found farther north than "Spring Garden Spring." I have heard of its having been in one instance procured on one of the Florida Keys, by Mr. TITIAN PEALE, whose specimen, which was a young male, has been described and figured in the continuation of WILSON'S American Ornithology. None were seen by me on any of these islands, and our worthy pilot told me, that in the course of the many years which he had spent in that country he had never met with one off the main-land. It did not occur to me on any part of the coast, while I was proceeding to Texas, nor is it to be found in that country, which seems very strange when I look at this bird, and compare it with the Rail family, which is so abundant along the whole of that coast, and to which it is very nearly allied in some of its habits, more especially to the Fresh-water Marsh-hen, *Rallus elegans.*

The flight of the Scolopaceous Courlan is heavy and of short duration; the concavity and shortness of its wings, together with the nature of the places which it inhabits, probably rendering it slow to remove from one spot to another on wing, it being in a manner confined among tall plants, the roots of which are frequently under water. When it rises spontaneously it passes through air at a short distance above the weeds, with regular beats of the wings, its neck extended to its full length, and its long legs dangling beneath, until it suddenly drops to the ground. Few birds then excel it in speed, as it proceeds, if pursued, by long strides, quickly repeated, first in a direct course, along paths formed by itself when passing and repassing from one place to another, and afterwards diverging so as to ensure its safety even when chased by the best dogs, or other not less eager enemies inhabiting the half-submersed wilderness which it has chosen for its residence. When accidentally surprised, it rises obliquely out of its recess, with the neck greatly bent downward, and although its legs dangle for awhile, they are afterwards extended behind in the manner of those of the Heron tribe. At

such times these birds are easily shot; but if they are only wounded, it would be vain to pursue them. Although of considerable size and weight, they are enabled by the great length and expansion of their toes, to walk on the broad leaves of the larger species of Nymphæa found in that country. They swim with the same buoyancy as the Coots, Gallinules, and Rails.

The nest of this bird is placed among the larger tufts of the tallest grasses that grow at short distances from the bayous, many of which are influenced by the low tides of the Gulf. It is so well fastened to the stems of the plants, in the same manner as that of *Rallus crepitans*, as to be generally secure from inundation; and is composed of rank weeds matted together, and forming a large mass, with a depression in the centre. The eggs, which rarely exceed five or six, are large for the size of the bird. The young are hatched early in May, and follow their parents soon after their birth, being covered with coarse tufty feathers, of a black colour.

The Everglades abound with a species of large greenish snail, on which these birds principally feed; and, from the great number of empty shells which are found at the foot of the nest and around it, it is probable that the sitting bird is supplied with food by her mate. Their notes, when uttered while they are on wing, are a sort of cackle, but when on the ground, much louder, especially during the pairing season, or when they are started by the report of a gun. The flesh of the young is pretty good eating. Although it is alleged that this bird occasionally alights on trees, I have never seen it in such a situation.

ARAMUS SCOLOPACEUS, Bonap. Syn., p. 39.
SCOLOPACEOUS COURLAN, *Aramus scolopaceus*, Bonap. Amer. Orn., vol. iv. p. 111.
SCOLOPACEOUS COURLAN, *Aramus scolopaceus*, Nutt. Man., vol. ii. p. 68.
SCOLOPACEOUS COURLAN, *Aramus scolopaceus*, Aud. Orn. Biog., vol. iv. p. 543.

Male, 25½, 41. Female, 25, 42. Young, 23.

Confined to the Everglades and central parts of Florida, where it is resident, but rather rare. Accidental on the Florida Keys.

Adult Male.

Bill long, being double the length of the head, rather slender, but strong, much compressed, straight, its breadth less before the nostrils than towards the point; upper mandible with the dorsal line straight until towards the end, then slightly arcuato-declinate, the ridge convex in its whole length, the sides nearly erect, more convex towards the extremity, the tip blunted, the edges broad and obtuse for half their length, sharp but thick in the rest of their extent; lower mandible slightly ascending at the base, then direct, much compressed towards the tip, which is acute, the angle long and very

narrow, the dorsal line slightly convex, the edges obtuse, becoming sharp towards the end. Nasal groove nearly half the length of the bill; nostrils direct, linear, long.

Head rather small, oblong, compressed. Eyes rather large. Neck long and slender. Body ovato-oblong, much compressed. Feet very long and slender, rather stout; tibia bare in its lower half, which is anteriorly covered with hexagonal scales, posteriorly with transverse scutella; tarsus long, compressed, anteriorly with numerous broad scutella, laterally with very small elongated scales, posteriorly with large scutelliform scales, many of which are divided; toes long, rather slender; hind toe small and elevated; fourth considerably longer than second, middle toe nine-twelfths of an inch longer than the outer; the anterior toes are divided to the base, compressed, scutellate above, scaly on the sides, papillate beneath, compressed and not marginate. Claws of moderate length, very slightly arched, compressed, tapering to a point; that of the first toe smallest, of the third largest, without serratures on the inner edge, which is thin and a little expanded.

Plumage of ordinary texture, rather compact and glossy on the upper parts, blended on the lower; feathers on the head and neck short, oblong; on the back ovate and very broadly rounded. Wings of moderate length, very broad, concave, rounded; primaries broad, secondaries very broad and rounded; first primary two-thirds of the length of the second, which is ten-twelfths shorter than the third; the fourth, which is longest, exceeds the third by one-twelfth, and the fifth by half a twelfth; some of the secondaries reach to half an inch of the tip of the longest primary when the wing is closed; the three outer quills are narrower toward the base than toward the extremity, more especially the first. The tail is short, broad, convex, rounded, of twelve broad, rounded feathers.

Bill greenish-yellow, dusky toward the end of both mandibles, but especially of the upper; iris hazel; feet lead-grey, claws dusky. The general colour of the plumage is chocolate-brown, the upper parts glossed with purple and bronze reflections; the fore part of the head paler, inclining to grey, each feather with a greyish-white central line; the sides of the head and the throat are still lighter, and a small portion of the throat is whitish, these parts being streaked with greyish brown and greyish-white; the lower eyelid white. The hind part and sides of the neck are marked with elliptical spots of white in regular series, there being one on each feather, some of them extending forwards to the posterior angle of the eye. Some of the feathers on the middle of the breast and the lower wing-coverts are similarly marked with lanceolate white spots, the tail is more highly glossed and coloured than the rest of the upper parts.

Length to end of tail 25¾ inches, to end of wings 25, to end of claws 32,

to carpal joint $13\frac{3}{4}$; extent of wings 41; wing from flexure $12\frac{1}{2}$; tail $5\frac{1}{2}$; bill along the ridge $4\frac{7}{12}$, along the edge of lower mandible $4\frac{3}{4}$; bare part of tibia $2\frac{1}{2}$; tarsus $4\frac{8}{12}$; hind toe $1\frac{1}{12}$, its claw $\frac{7}{12}$; second toe $2\frac{4}{12}$, its claw $\frac{9}{12}$; third toe $3\frac{1}{2}$, its claw $\frac{10}{12}$; fourth toe $2\frac{8}{12}$, its claw $\frac{8}{12}$.

The female is somewhat less, but resembles the male.

Length to end of tail 25 inches, to end of claws $33\frac{1}{4}$; to end of wings 21, to carpal joint $12\frac{3}{4}$; extent of wings 42; wing from flexure 12; tail $4\frac{3}{4}$; bill along the gap $4\frac{3}{8}$.

The young when fully fledged is of a much lighter tint; the head and fore-neck brownish-grey, the lower parts greyish-brown. The bill is yellowish-green, darker toward the end; the feet much darker than in the adult. Excepting the quills, primary-coverts, tail-feathers, and the rump, all the plumage is marked with spots of white, of which there is one along the centre of each feather; those on the neck elongated, on the back, wings, and breast, lanceolate. In this state it is figured in the continuation of WILSON'S American Ornithology, by the Prince of MUSIGNANO.

Length to end of tail 23 inches.

This remarkable bird has exercised the ingenuity of the systematizing ornithologists, some of whom have considered it as a Heron, others a Crane, while many have made it a Rail, and many more a genus apart, but allied to the Rails, or to the Herons, or to both. It seems in truth to be a large Rail, with the wings and feet approaching in form to those of the Herons; but while frivolous disputes might be carried on *ad libitum* as to its location in the system of nature, were we merely to consider its exterior, it is fortunate that we possess a means of determining its character with certainty;—if we examine its digestive organs, we shall at once see if it be a Rail, or a Heron, or anything else. If a Heron, it will have a very wide œsophagus, a roundish, thin-walled stomach, very slender intestines, and a single short obtuse cœcum; if a Rail or Gallinule, or bird of that tribe, it will have a narrow mouth, a narrow œsophagus, a very muscular stomach, intestines of moderate width, and two moderately long, rather wide cœca. Here then are two specimens, shot in Florida, and preserved in spirits.

The first, which is found to be a female, has the mouth narrow, measuring only 7 twelfths across; the tongue very long and extremely slender, trigonal, pointed, extending to within half an inch of the tip of the lower mandible, being $3\frac{7}{12}$ inches in length. The œsophagus, *a b c d*, which is 12 inches long, is narrow in its whole length, its diameter at the upper part being 6 twelfths, below the middle of the neck 8 twelfths. The proventriculus, *b c*, is nearly 1 inch long, 9 twelfths in its greatest diameter, bulbiform; its glandules cylindrical, $1\frac{1}{2}$ twelfths long. Between the termination of the proventriculus, and the commencement of the stomach, the space, *c d*, is

more elongated than usual, an inch and 2 twelfths, and presents the appearance of a tube curved toward the left in the form of the letter S. The circular fibres of this part are strong, and its epithelium is very thick, soft, and raised into twelve very prominent rounded longitudinal rugæ. The stomach, properly so called, *d e f g*, is an extremely powerful gizzard, of an orbicular form, compressed, with its axis a little inclined toward the right side, its length 1 inch and 9 twelfths, its breadth 1 inch and 8 twelfths, its thickness 11 twelfths. The left lateral muscle, *d f*, is much larger than the right, occupying nearly one-half of the organ; the muscles are thick, but not very remarkably so, their greatest thickness being 4 twelfths; the epithelium is very hard and rugous. The duodenum, *g h i*, curves in the usual manner, folding back upon itself at the distance of 3 inches. The intestine, *g h i j k*, is of moderate length, 31 inches, its greatest diameter 3 twelfths; the rectum, *k l*, 3 inches long, including the cloaca, *l m*, which is globular, 1½ inches in diameter; the cœca, *n n*, of moderate size, 1¾ inches long, for nearly half their length 2 twelfths in diameter, in the rest of their extent from 4 to 6 twelfths, obtuse; their distance from the cloaca 10 twelfths.

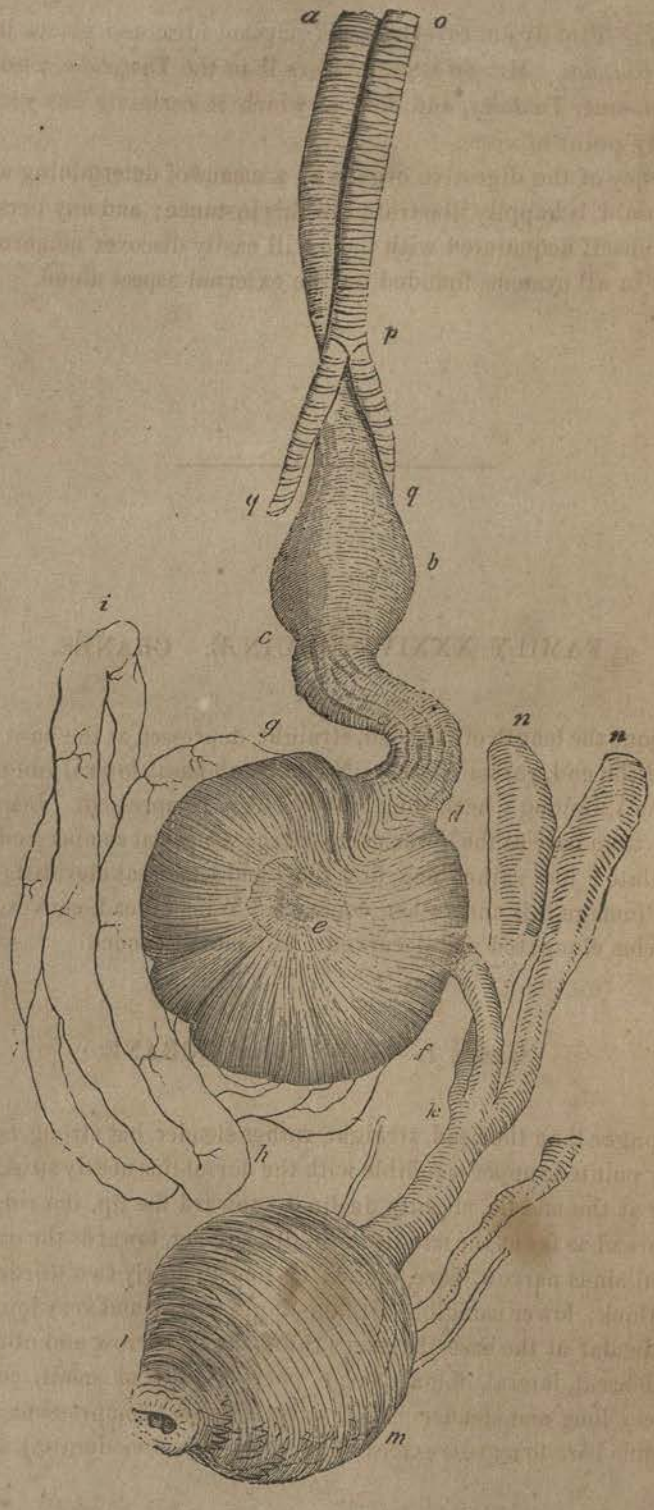
The trachea, *o p*, is 10 inches long, narrow, of nearly uniform diameter, being narrowest in the upper third of its length, unless for three fourths of an inch at the commencement. Its rings, 186 in number, are ossified, and a little flattened. The contractor muscles are slender, as are the sterno-tracheal; and there is a single pair of inferior laryngeal. The bronchi, *p q*, are wide, tapering, of about 15 narrow cartilaginous half rings. The heart is of moderate size, $1\frac{7}{12}$ inches long, 1 inch in breadth. The liver is small, its lobes, which are equal, being 1 inch in length.

The other individual, a male, has the œsophagus 12 inches long; the distance from the proventriculus to the stomach $1\frac{2}{12}$ inches; the stomach $1\frac{8}{12}$ inches long, and the same in breadth; the cœca 2 inches long, the greatest diameter 5 twelfths; the intestine 32½ inches in length, their greatest diameter 3½ twelfths.

Now, in all this there is nothing indicative of any affinity to the Herons; the structure of the intestinal canal being essentially like that of the Coots, Gallinules, and Rails. Even the external parts sufficiently indicate its station, the bill, the plumage and the colouring being more like those of the Rallinæ than of any other family.

The Prince of MUSIGNANO, who first described this bird as a Rail, *Rallus giganteus*, afterwards adopted for it VIEILLOT'S genus *Aramus*, and considered it as belonging to the *Ardeidæ*, forming a connecting link with them and the *Rallidæ*, and "aberrating somewhat towards the *Scolopacidæ*, as well as tending a little towards the *Psophidæ*, sub-family *Gruinæ*," and claiming "again a well-founded resemblance to the most typical form of the

SCOLOPACEOUS COURLAN.



genus *Rallus*." Finally, he reverts to his original idea, and places it at the head of the *Rallidæ*. Mr. SWAINSON refers it to the *Tantalidæ*, associating it with *Anastomus*, *Tantalus*, and *Ibis*, to which it certainly has very little affinity in any point of view.

The efficiency of the digestive organs as a means of determining affinities in cases of doubt, is happily illustrated in this instance; and any person who will make himself acquainted with them will easily discover numerous false associations in all systems founded on the external aspect alone.

FAMILY XXXIV.—GRUINÆ. CRANES.

Bill about the length of the head, straight, depressed at the base, compressed toward the end, rather obtuse. Nostrils sub-basal, lateral oblong. Head rather small, oblong; neck long; body large, compressed. Legs long and slender; tibia bare at the lower part; tarsus somewhat compressed, anteriorly scutellate; toes rather long, first short and somewhat elevated; claws obtuse. Plumage full and rather compact. Wings broad, convex, the inner secondaries elongated and decurved; tail short, rounded.

GENUS I.—GRUS, *Briss.* CRANE.

Bill longer than the head, straight, rather slender, but strong, compressed, obtusely pointed; upper mandible with the dorsal line nearly straight, a little concave at the middle, slightly declinate toward the tip, the ridge flat and rather broad as far as the middle, the sides sloping, towards the end convex; the nasal sinus narrow, bare, and extending to nearly two-thirds, the edges direct, thick; lower mandible with the angle narrow and very long, the sides perpendicular at the base, the edges thick, the tip narrow and obtuse. Nostrils sub-basal, lateral, oblong, large, pervious. Head small, compressed; neck very long and slender; body very large, but compressed. Feet very long; tibia bare to a great extent; tarsus long, stout, moderately compressed,

anteriorly covered with broad decurved scutella; toes stout, scutellate, of moderate length, marginate, the first very small and elevated, the fourth webbed at the base. Claws of moderate size, strong, considerably curved, rather compressed, blunted. Plumage imbricated; upper part of head bare. Wings ample, the second, third, and fourth longest, inner secondaries and their coverts curved downwards. Tail short, rounded, of twelve broad, rounded feathers.

THE WHOOPING CRANE.

GRUS AMERICANA, *Forster.*

PLATE CCCXIII.—ADULT MALE.—PLATE CCCXIV.—YOUNG.

The variegated foliage of the woods indicates that the latter days of October have arrived; gloomy clouds spread over the heavens; the fierce blasts of the north, as if glad to escape from the dreary regions of their nativity, sport in dreadful revelry among the forests and glades. Showers of sleet and snow descend at intervals, and the careful husbandman gathers his flocks, to drive them to a place of shelter. The traveller gladly accepts the welcome of the forester, and as he seats himself by the blazing fire, looks with pleasure on the spinning-wheels of the industrious inmates. The lumberer prepares to set out on his long voyage, the trapper seeks the retreats of the industrious beaver, and the red Indian is making arrangements for his winter hunts. The Ducks and Geese have already reached the waters of the western ponds; here a Swan or two is seen following in their train, and as the observer of nature stands watching the appearances and events of this season of change, he hears from on high the notes of the swiftly travelling but unseen Whooping Crane. Suddenly the turbid atmosphere clears, and now he can perceive the passing birds. Gradually they descend, dress their extended lines, and prepare to alight on the earth. With necks outstretched, and long bony legs extended behind, they proceed, supported by wings white as the snow but tipped with jet, until arriving over the great savannah they wheel their circling flight, and slowly approach the ground, on which with half-

Whooping Crane.

Male, adult.

Drawn from Nature by J.J. Audubon, F.R.S.E.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

Whooping Crane.

Young.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Phila.a

closed wings, and outstretched feet they alight, running along for a few steps to break the force of their descent.

Reader, see the majestic bird shake its feathers, and again arrange them in order. Proud of its beautiful form, and prouder still of its power of flight, it stalks over the withering grasses with all the majesty of a gallant chief. With long and measured steps he moves along, his head erect, his eye glistening with delight. His great journey is accomplished, and being well acquainted with a country which has often been visited by him, he at once commences his winter avocations.

The Whooping Crane reaches the Western Country about the middle of October, or the beginning of November, in flocks of twenty or thirty individuals, sometimes of twice or thrice that number; the young by themselves, but closely followed by their parents. They spread from Illinois over Kentucky, and all the intermediate States, until they reach the Carolinas on the southern coast. the Floridas, Louisiana, and the countries bordering on Mexico, in all of which they spend the winter, seldom returning northward until about the middle of April, or towards the beginning of May. They are seen on the edges of large ponds supplied with rank herbage, on fields or savannahs, now in swampy woods, and again on extensive marshes. The interior of the country, and the neighbourhood of the sea shores, suit them equally well, so long as the temperature is sufficiently high. In the Middle States, it is very seldom indeed that they are seen; and to the eastward of these countries they are unknown; for all their migrations are performed far inland, and thus they leave and return to the northern retreats where, it is said, they breed and spend the summer. While migrating they appear to travel both by night and by day, and I have frequently heard them at the former, and seen them at the latter time, as they were proceeding toward their destination. Whether the weather be calm or tempestuous, it makes no difference to them, their power of flight being such as to render them regardless of the winds. Nay, I have observed them urging their way during very heavy gales, shifting from high to low in the air with remarkable dexterity. The members of a flock sometimes arrange themselves in the form of an acute-angled triangle; sometimes they move in a long line; again they mingle together without order, or form an extended front; but in whatever manner they advance, each bird sounds his loud note in succession, and on all occasions of alarm these birds manifest the same habit.

I had, in 1810, the gratification of taking ALEXANDER WILSON to some ponds within a few miles of Louisville, and of shewing him many birds of this species, of which he had not previously seen any other than stuffed specimens. I told him that the white birds were the adults, and that the grey ones were the young. WILSON, in his article on the Whooping Crane,

has alluded to this, but, as on other occasions, has not informed his readers whence the information came.

Both old and young may be seen digging through the mud before the rains have begun to cover the shallow ponds with water, for during summer they become almost dry. The birds work very assiduously with their bills, and succeed in uncovering the large roots of the great water-lily, which often run to a depth of two or three feet. Several Cranes are seen in the same hole, tugging at roots and other substances, until they reach the object of their desire, which they greedily devour. While thus engaged, they are easily approached; for if their heads are bent down they cannot see you, and until they raise themselves again, to take notice of what may be going on around the place, you may advance so as to get within shot. While I watched them at this work, they were perfectly silent; and as I lay concealed behind a large cypress tree, within thirty paces of a flock, thus buried, as it were, in the great holes they had formed, so as to put me in mind of a parcel of hogs or bears at their wallowing spots, I could plainly see the colour of their eyes, which is brown in the young, and yellow in the adult. After observing them as long as I wished, I whistled, on which they all at once raised their heads to see what the matter might be. I had so fair an opportunity that I could not resist the temptation, especial as several of the birds had their necks so close together that I felt confiden. I must kill more than one of them. Accordingly, just as their last croaking notes were heard, and I saw them preparing to set to work again, I fired. Only two flew up, to my surprise. They came down the pond towards me, and my next shot brought them to the ground. On walking to the hole, I found that I had disabled seven in all. Those which were in different holes farther off, all flew away, uttering loud cries, and did not return that afternoon. In the course of a week these birds turned up the earth, and dug holes all over the dry parts of the ponds. As soon as heavy rains fill the pools, the Cranes abandon them, and resort to other places.

The Sand-hill Cranes resort at times to the fields, in which corn, peas, and sweet potatoes have been planted, as well as to the cotton plantations. They feed on the grains and peas, dig up the potatoes, which they devour with remarkable greediness; and in the wet fields seize on water insects, toads, and frogs, but never, I believe, on fishes.

This species feeds only during the day. Besides the objects which I have already mentioned, it now and then swallows a mole or a meadow-mouse, and not unfrequently, I think, snakes of considerable length. I opened one that had a garter-snake, more than fifteen inches long, in its stomach.

The wariness of this species is so remarkable, that it takes all the cunning and care of an Indian hunter to approach it at times, especially in the case

of an old bird. The acuteness of their sight and hearing is quite wonderful. If they perceive a man approaching, even at the distance of a quarter of a mile, they are sure to take to wing. Should you accidentally tread on a stick and break it, or suddenly cock your gun, all the birds in the flock raise their heads and emit a cry. Shut the gate of a field after you, and from that moment they all watch your motions. To attempt to crawl towards them, even among long grass, after such an intimation, would be useless; and unless you lie in wait for them, and be careful to maintain a perfect silence, or may have the cover of some large trees, heaps of brushwood, or fallen logs, you may as well stay at home. They generally see you long before you perceive them, and so long as they are aware that you have not observed them, they remain silent; but the moment that, by some inadvertency, you disclose to them your sense of their presence, some of them sound an alarm. For my part, reader, I would as soon undertake to catch a deer by fair running, as to shoot a Sand-hill Crane that had observed me. Sometimes, indeed, towards the approach of spring, when they are ready to depart for their breeding grounds, the voice of one will startle and urge to flight all within a mile of the spot. When this happens, all the birds around join into a great flock, gradually rise in a spiral manner, ascend to a vast height, and sail off in a straight course.

When wounded, these birds cannot be approached without caution, as their powerful bill is capable of inflicting a severe wound. Knowing this as I do, I would counsel any sportsman not to leave his gun behind, while pursuing a wounded Crane.

While in the Floridas, I saw only a few of these birds alive, but many which had been shot by the Spaniards and Indians, for the sake of their flesh and beautiful feathers, of which latter they make fans and fly-brushes. None of these birds remain there during summer; and WILLIAM BARTRAM, when speaking of this species, must have mistaken the Wood Ibis for it.

The young are considerably more numerous than the old white birds; and this circumstance has probably led to the belief among naturalists that the former constitute a distinct species, to which the name of Canada Crane, *Grus canadensis*, has been given. This, however, I hope, I shall be able to clear up to your satisfaction. In the mean time, I shall continue my remarks.

According to circumstances, this species roosts either on the ground or on high trees. In the latter case, they leave their feeding-ground about an hour before sun-set, and going off in silence, proceed towards the interior of high land forests, where they alight on the largest branches of lofty trees, six or seven settling on the same branch. For half an hour or so, they usually dress their plumage, standing erect: but afterwards they crouch in the man-

ner of Wild Turkeys. In this situation they are sometimes shot by moonlight. Those which resort to plantations, situated in the vicinity of large marshes, covered with tall grasses, cat's tails, and other plants, spend the night on some hillock, standing on one leg, the other being drawn under the body, whilst the head is thrust beneath the broad feathers of the shoulder. In returning towards the feeding grounds, they all emit their usual note, but in a very low undertone, leaving their roost at an earlier or later hour, according to the state of the weather. When it is cold and clear, they start very early; but when warm and rainy, not until late in the morning. Their motions toward night are determined by the same circumstances. They rise easily from the ground after running a few steps, fly low for thirty or forty yards, then rise in circles, crossing each other in their windings, like Vultures, Ibises, and some other birds. If startled or shot at, they utter loud and piercing cries. These cries, which I cannot compare to the sounds of any instrument known to me, I have heard at the distance of three miles, at the approach of spring, when the males were paying their addresses to the females, or fighting among themselves. They may be in some degree represented by the syllables *kewrr*, *kewrr*, *kewrooh;* and strange and uncouth as they are, they have always sounded delightful in my ear.

In December 1833, I sent my son to Spring Island, on the coast of Georgia, to which these birds are in the habit of resorting every winter. Mr. HAMMOND, the proprietor of this island, treated him with all the hospitality for which the southern planters are celebrated. The Cranes, which were plentiful, resorted to the sweet potato fields, digging up their produce as expertly as a troop of negroes. They walked carefully over the little heaps, probed them in various parts in the manner of Woodcocks or Snipe, and whenever they hit upon a potato, removed the soil, took out the root, and devoured it in rather small pieces. In this manner they would search over the whole field, which was two miles in length, and rather more than a quarter of a mile in breadth, gleaning all the potatoes that had escaped the gatherers. They were so shy, however, that notwithstanding all the endeavours of my son, who is a good hand at getting in upon game, as well as a good shot, he only killed a young one, which was evidently of that year's brood, it being yet almost reddish-brown, the long feathers of the rump just beginning to show, and the head yet covered with hair-like feathers to the mandible, and merely showing between them the wrinkled skin so conspicuous in the old birds. The specimen procured on Spring Island was carefully examined and described, and the skin is now in the British Museum in London. Its flesh was tender and juicy, of a colour resembling that of young venison, and afforded excellent eating. This I have always found to be the case with young birds of this species, so long as they are in their brown

livery, and even when they have begun to be patched with white; but in old birds the flesh becomes very dark, tough and unfit for the table, although the Seminole Indians shoot them on all occasions for food.

In captivity the Whooping Crane becomes extremely gentle, and feeds freely on grain and other vegetable substances. A Mr. MAGWOOD, residing near Charleston, in South Carolina, kept one for some time, feeding it on maize. It accidentally wounded one of its feet on the shell of an oyster, and, although the greatest care was taken of it, died after lingering some weeks. Having myself kept one alive, I will give you an account of its habits.

It was nearly full-grown when I obtained it, and its plumage was changing from greyish-brown to white. I received it as a present from Captain CLACK of the United States Navy, commander of the Erie sloop of war. It had been wounded in the wing, on the coast of Florida, but the fractured limb had been amputated and soon healed. During a voyage of three months, it became very gentle, and was a great favourite with the sailors. I placed it in a yard, in company with a beautiful Snow Goose. This was at Boston. It was so gentle as to suffer me to caress it with the hand, and was extremely fond of searching for worms and grubs about the wood pile, probing every hole it saw with as much care and dexterity as an Ivory-billed Woodpecker. It also watched with all the patience of a cat the motions of some mice which had burrows near the same spot, killed them with a single blow, and swallowed them entire, one after another, until they were extirpated. I fed it on corn and garbage from the kitchen, to which were added bits of bread and cheese, as well as some apples. It would pick up the straws intended to keep its feet from being soiled, and arrange them round its body, as if intent on forming a nest. For hours at a time, it would stand resting on one foot in a very graceful posture; but what appeared to me very curious was, that it had a favourite leg for this purpose; and in fact none of my family ever found it standing on the other, although it is probable that this happened in consequence of the mutilation of the wing, the leg employed being that of the injured side. The stump of its amputated wing appeared to be a constant source of trouble, particularly at the approach of the winter: it would dress the feathers about it, and cover it with so much care, that I really felt for the poor fellow. When the weather became intensely cold, it regularly retired at the approach of night under a covered passage, where it spent the hours of darkness; but it always repaired to this place with marked reluctance, and never until all was quiet and nearly dark, and it came out, even when the snow lay deep on the ground, at the first appearance of day. Now and then it would take a run, extend its only wing, and, uttering a loud cry, leap several times in the air, as if anxious to return to its haunts. At other

times it would look upwards, cry aloud as if calling to some acquaintance passing high in the air, and again use its ordinary note whenever its companion the Snow Goose sent forth her own signals. It seldom swallowed its food without first carrying it to the water, and dipping it several times, and now and then it would walk many yards for that express purpose. Although the winter was severe, the thermometer some mornings standing as low as 10°, the bird fattened and looked extremely well. So strong was the natural suspicion of this bird, that I frequently saw it approach some cabbage leaves with measured steps, look at each sideways before it would touch one of them, and after all, if it by accident tossed the leaf into the air when attempting to break it to pieces, it would run off as if some dreaded enemy were at hand.

The trachea of this bird confirms my opinion that the Canada Crane and the Whooping Crane are merely the same species in different states of plumage, or, in other words, at different ages; and, in truth, the differences are not greater than those exhibited by many other birds, both aquatic and terrestrial. In illustration of this subject I might adduce Ibises, Herons, Divers, and Grebes; but this is quite unnecessary.

In reading the accounts given of the Canada Crane of authors, I find no description of its manner of breeding. In the Fauna Boreali-Americana of Mr. SWAINSON and Dr. RICHARDSON, the eggs of both are described, and in NUTTALL'S Manual those of the Whooping Crane also; but in these works the account given of the birds and of their eggs is such, that one might even, from comparing the descriptions, suppose them to be of the same species. I have never had the satisfaction of finding any of the breeding-places of the Whooping Crane; but I well know that many birds breed long before they have attained their full plumage. The supposed new species of Heron described under the name of *Ardea Pealii*, by my excellent friend Prince CHARLES BONAPARTE, breeds as the White-headed Eagle sometimes does, the immature bird in a snow-white dress, the adult in purple and greyish-blue plumage. The young of *Ardea cærulea* were for some time considered to form a distinct species, they being white also, then blue and white, and finally dark blue. But the most remarkable instance of change of plumage in the Waders is exhibited in the Scarlet Ibis. My humble opinion is, that unless in cases where birds are at first of one colour, and that colour remains ever after, little dependence can be placed on the tints of the plumage as a specific character.

On looking over my notes, I find that I have omitted to inform you that the extraordinary strength of the thighs, legs, and feet of the Whooping Crane, tends greatly to make it more terrestrial than the Herons; and that the great size of their nostrils, which so much resemble those of the Vul-

tures, is well adapted to keep the inner parts of the organ from the damp earth and other matters with which they are so often in contact, while searching in the ground or mud for roots and other vegetable substances, on which the bird principally feeds. I am convinced also, that this species does not attain its full size or perfect plumage until it is four or five years old. The beauty of the plumage may be improved in brilliancy during the breeding season by a greater brightness in the colour of the bill, as in the Booby Gannet and White Ibis, as well as in the redness of the fleshy parts of the head.

The measurements of the adult bird of my plate, drawn at New Orleans, in the month of April, were as follows:—Length from tip of bill to end of claws, 5 feet 5 inches; to end of tail, 4 feet 6 inches; the drooping feathers 1 foot beyond; alar extent 7 feet 8 inches; length of wing 22 inches; naked part of thigh 5 inches; tarsus 11¼ inches; length of middle toe 4¼, of its claw ¾.

The measurements of the specimen kept at Boston:—Length from tip of bill to end of tail, 3 feet 9 inches; to end of claws, 4 feet 6 inches; tarsus 8 inches; naked part of thigh 3½. The elongated inner secondaries equalled the tail. The weight was 9 lbs. 14¾ oz.

Measurements of that killed on Spring Island:—Length 4 feet 4½ inches, the claws being 7 inches beyond the tail, so that the length from the tip of the bill to the end of the tail was 3 feet 9½ inches; alar extent 5 feet 8 inches. Weight 8¾ lbs.

In the Museum of the University of Edinburgh, there is a specimen of still smaller size.

My friend JOHN BACHMAN, in a note addressed to me, says, "I saw a pair of tame birds of this species, which, as they advanced in age, changed their colours from grey to white."

WHOOPING CRANE, *Ardea Americana*, Wils. Amer. Orn., vol. vii. p. 20.

GRUS AMERICANA, Bonap. Syn., p. 302.

GRUS AMERICANA, *Whooping Crane*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 372. Adult.

GRUS CANADENSIS, *Brown Crane*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 273.

WHOOPING CRANE, *Grus Americana*, Nutt. Man., vol. ii. p. 34. Adult.

BROWN CRANE, *Grus canadensis*, Nutt. Man., vol. ii. p. 38. Young.

WHOOPING CRANE, *Grus Americana*, Aud. Orn. Biog., vol. iii. p. 202, Adult; p. 441, Young.

Male 54, 92.

From Texas to North Carolina during autumn and winter, and across to the Rocky Mountains. Breeds from Upper California northward to the

Arctic regions, from which it removes southward early in autumn. Abundant in Georgia and Florida, and from thence to Texas.

Adult Male.

Bill long, straight, rather slender, but strong, compressed, pointed. Upper mandible with the dorsal line nearly straight, a little concave at the middle, slightly declinate toward the tip, the ridge flat and rather broad as far as the middle, the sides sloping, towards the end convex, with a wide groove filled by a soft membrane, and extending nearly two-thirds of its length, the edges sharp but thick for two-thirds of its length, and very slightly serrated. Nostrils lateral, placed at about a third of the length of the bill from its base, oblong, large, pervious. Lower mandible with the angle narrow and very long, the sides perpendicular at the base, the edges straight and sharp.

Head small, compressed. Eyes of moderate size. Neck very long. Body rather slender. Feet very long; tibia long, bare to a large extent, and covered with transverse series of rectangular scales; tarsus very long, rather compressed, covered anteriorly with numerous oblique scutella, posteriorly with large, and laterally with small scales; toes rather small; the first very small, second and fourth nearly equal, third considerably longer, the third and fourth connected at the base by a web of considerable size, all marginate, covered above with numerous narrow scutella, beneath broad, flattened, and granulate; claws of moderate size, strong, considerably curved, rather compressed, that of hind toe much smaller, second and third largest, the latter with a groove on its inner edge.

Fore and upper part of head to the occiput papillar, and covered only with small hairs, as are the sides of the head. The plumage in general is soft, but distinctly imbricated; the feathers rounded, those of the neck short. Wings ample; the second primary longest, third and fourth nearly as long, first longer than fifth; inner secondaries and their coverts curved downwards, forming a beautiful bunch of loosely barbed feathers. Tail short, rounded, of twelve broad rounded feathers.

Bill dusky, towards the base yellow. Iris yellow. Bare part of head carmine, with the hairs black. Feet black. The plumage is pure white, excepting the alula, primaries, and primary coverts, which are brownish-black.

Length to end of tail 54 inches; to end of wings 53, to end of claws 65; extent of wings 92; wing from flexure 22½; tail 7; bill along the ridge 5 4/12, along the edge of the lower mandible 5 4/12, bare part of tibia 5; tarsus 11¼; middle toe 4¼, its claw ¾.

The young after its first autumnal moult has the sides of the head feathered behind the eye, and beneath to the base of the lower mandible; the curved secondaries and their coverts are tapering and elongated, but not nearly

so much developed as in the old birds. The skin of the head is red; the bill brownish-black, as are the feet. Chin and sides of the head greyish-white. The plumage generally is bluish-grey, but the feathers are largely tipped and margined with yellowish-brown; the primary quills and their coverts dark brown towards the end, but with brownish-white shafts; the abdomen pure greyish blue.

As the bird advances in age, the yellowish-brown disappears, and the general colour of the plumage becomes pure bluish-grey, which ultimately changes to white.

The trachea, which is 13 inches long to its entrance between the crura of the furcula, passes into a cavity in the sternum, where it curves so as to describe two-thirds of a circle, returns on the right side, and enters the thorax by curving backwards. The cavity in the sternum is 2 inches long, with an equal depth, and a breadth of $\frac{3}{4}$ inch. The ridge of the keel is at its fore part $\frac{3}{4}$ in breadth, and contracts to $\frac{1}{2}$ inch at its junction with the angle of the furcula, which is continuous with it. The gizzard is of moderate size; the intestine, which is thin and small, measures 5 feet in length. Boston specimen.

FAMILY XXXV. CHARADRIINÆ. PLOVERS.

Bill short, straight, subcylindrical, obtusely pointed; upper mandible with its dorsal line straight for half its length, afterwards convex; nasal groove bare, extended along two-thirds of the length of the bill. Head of moderate size, rather compressed, rounded in front. Eyes large. Neck rather short; body ovate, rather full. Plumage soft, blended, somewhat compact above; wings long, pointed, with the first quill longest. Tail of moderate length, somewhat rounded, or with the middle feathers projecting, of twelve feathers. Œsophagus of moderate width; stomach roundish, compressed, very muscular, with the epithelium dense and rugous; intestine rather long, and of moderate width, with rather long cœca. A single pair of inferior laryngeal muscles. Nest on the ground, shallow; eggs generally four, large, pyriform, spotted. Young densely covered with down, and able to walk immediately after birth.

Genus I.—CHARADRIUS, *Linn.* PLOVER.

Bill short, or as long as the head, straight, rather stout, somewhat compressed, pointed ; upper mandible with the dorsal line straight, and slightly declinate for at least half its length, then bulging a little, and arched to the tip, which is rather acute, the sides flat and sloping at the base, convex towards the end, where the edges are sharp and inclinate ; nasal groove extended to half length, and bare ; lower mandible, with the angle rather long and narrow, the sides at the base erect and nearly flat, the dorsal line ascending and slightly convex, the edges sharp and involute towards the tip, which is narrow and rather pointed. Nostrils sub-basal, linear, open, and pervious. Eyes rather large. Head of moderate size, roundish, the forehead much rounded ; neck rather short ; body ovate, rather full. Feet rather long, slender ; tibia bare for a considerable space ; tarsus rather compressed, covered all round with reticulated hexagonal scales ; toes of moderate length, slender, scutellate, second shorter than fourth, first wanting or rudimentary; anterior toes broadly marginate, webbed at the base. Claws small, compressed, slightly arched, rather acute. Plumage soft, blended, the feathers broad and rounded. Wings long and pointed, the primaries tapering, the first longest ; inner secondaries tapering and elongated. Tail rather short, or of moderate length, rounded, of twelve rounded feathers. Tongue tapering, grooved above ; œsophagus of moderate width ; proventriculus oblong ; stomach roundish, very muscular, its lateral and inferior muscles prominent, epithelium dense, longitudinally rugous ; intestine rather long and of moderate width ; cœca rather long.

Black-bellied Plover

1. Male. 2. Young in Autumn. 3. Nestling.

Drawn from Nature by J.J. Audubon, F.R.S. F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

BLACK-BELLIED PLOVER.

CHARADRIUS HELVETICUS, *Linn.*

PLATE CCCXV.—MALE IN SUMMER, YOUNG, AND ADULT IN WINTER.

This beautiful bird makes its appearance on our southern coasts in the beginning of April, as I had many opportunities of observing in the course of my journey along the shores of the Gulf of Mexico, in the spring of 1837. Instead of being congregated in large flocks, as is the case during their southward migration in autumn, they are seen coming in small numbers, but at short intervals, so as almost to form a continuous line. They travel chiefly by night, and rest for a great part of the day along the margins of the sea, either reposing on the sands in the sunshine, or searching the beaches for food. After dusk their well-known cries give note of their passage, but by day they remain silent, even when forced to betake themselves to flight. On such occasions they generally wheel over the waters, and not unfrequently return to the spot which they had at first selected. I have traced this species along the whole of our eastern coast, and beyond it to the rugged shores of Labrador, where my party procured a few, on the moss-covered rocks, although we did not then find any nests, and where some young birds were obtained in the beginning of August.

Individuals of this species spend the summer months in the mountainous parts of Maryland, Pennsylvania, and Connecticut, where they breed. I found their nests near the waters of the Delaware and the Perkioming creek, when I resided in the first of these States, and in the same localities as those of *Totanus Bartramius*, as well as in ploughed fields. The nest is merely a slight hollow with a few blades of grass. The eggs are four, an inch and seven and a half eighths in length, an inch and three-eighths in their greatest breadth; their ground-colour yellowish-white, tinged with olivaceous, and pretty generally covered with blotches and dots of light brown and pale purple, the markings being more abundant toward the small end. Their form is similar to that of the egg of the Guillemot, that is, broadly rounded at the large end, then tapering, with the sides nearly straight, and the narrow end rounded. When sitting, these birds will remain until they are almost trodden upon. On being started, they fly off a few yards, alight running, and use all the artifices employed on such occasions to induce the intruder to set

out in pursuit. The young leave the nest almost immediately after they are hatched, and should one approach them the parents become very clamorous, and fly around until they are assured of the safety of their brood, when they take a long flight, and disappear for a time. Unless during the breeding season, they are exceedingly shy ; but their anxiety for their young renders them forgetful of the danger which they incur in approaching man. The young, when two or three weeks old, run with great celerity, and squat in perfect silence when apprehensive of danger. When they are able to fly, several families unite, and betake themselves to the sea-shore, where other flocks gradually arrive, until at length, on the approach of cold weather, almost all of them begin to move southward. Although the great body of these Plovers pass beyond the limits of the United States, some remain on the shores of the Floridas during winter. In their habits they are more maritime than the Golden Plovers, which, when migrating, generally advance over the land.

The flight of this bird is swift, strong, and well sustained. When roaming over large sand-bars, they move in compact bodies, whirling round, and suddenly veering, so as alternately to exhibit their upper and lower parts. At this time old and young are intermixed, and many of the former have lost the black so conspicuous on the neck and breast in summer. During winter, or as long as they frequent the sea-shore, they feed on marine insects, worms, and small shell-fish ; and when they are in the interior, on grasshoppers and other insects, as well as berries of various kinds, on which they fatten so as to become tolerably good eating.

This species is known in Pennsylvania by the name of Whistling Field Plover, suggested by the loud and modulated cries which it emits during the love-season. In the Eastern States, as well as in Kentucky, it is called the Bull-head ; but in the South its most common appellation is Black-bellied Plover. I have seen it, though sparingly, along the shores of the Ohio, probably during its passage from the north.

As its habits agree with those of the Plovers generally, and its form is similar to that of the Golden Plover and other species, the only difference being the presence of a rudimentary hind toe, it was scarcely necessary to distinguish it generically from *Charadrius*, as many recent authors have done.

TRINGA HELVETICA and SQUATAROLA, Linn. Syst. Nat., p. 250, 252.

BLACK-BELLIED PLOVER, *Charadrius helveticus*, Wils. Amer. Orn., vol. vii. p. 41. Summer.

CHARADRIUS HELVETICUS, Bonap. Syn., p. 298.

GREY LAPWING, *Vanellus melanogaster*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 370.

BLACK-BELLIED OR SWISS PLOVER, Nutt. Man., vol. ii. p. 26.

BLACK-BELLIED PLOVER, *Charadrius helveticus*, Aud. Orn. Biog., vol. iv. p. 280.

Male, $11\frac{3}{4}$, 25.

From Texas along the coast to the northern extremity of the Continent. Breeds from Virginia northward. Not abundant.

Adult Male in summer.

Bill as long as the head, straight, somewhat compressed, stout. Upper mandible with the dorsal line straight and slightly sloping for more than half its length, then bulging a little and arched to the tip, which is rather acute, the sides flat and sloping at the base, convex towards the end, where the edges are sharp and inclinate. Nasal groove extended to a little more than half the length of the mandible; nostrils sub-basal, linear, open and pervious. Lower mandible with the angle rather long and narrow, the sides at the base erect and nearly flat, the dorsal line ascending and slightly convex, the edges sharp and involute towards the narrow tip.

Head of moderate size, roundish, the forehead much rounded. Eyes large. Neck rather short. Body ovate, rather full. Feet rather long, slender; tibia bare for a considerable space; tarsus rather compressed, covered all round with reticulated hexagonal scales; toes of moderate length, slender; the first extremely diminutive, with an equally minute claw; the second shorter than the fourth, which is much exceeded by the third; the anterior toes are rather broadly marginate, the web between the third and fourth extending to the second joint of the latter, that between it and the second smaller. Claws small, compressed, slightly arched, acute.

Plumage soft, blended, the feathers broad and rounded. Wings long and pointed, primary quills tapering, the first longest, the second a quarter of an inch shorter, the rest rapidly graduated; secondaries short, broad, obliquely rounded; the inner tapering and elongated. Tail rather short, slightly rounded, of twelve rounded feathers.

Bill and claws black. Iris and feet greyish-black. Forehead yellowish-white, the rest of the head and the hind neck greyish-white, spotted with dusky. The upper parts are variegated with black, yellowish-brown, and white, the feathers being tipped with the latter. The hind part of the rump, the upper tail-coverts, and the tail-feathers, white, transversely barred with brownish-black; the tail tipped with white, and having four dark bars on the middle feathers, and seven or eight on the outer webs of the rest. Alula, primary coverts, and primary quills brownish-black, the coverts terminally margined with white; shafts of the primaries about the middle, and part of the inner web towards the base, white; the inner six with a white patch on the outer web towards the base, and margined with white externally; the outer secondary feathers white at the base and margined with the same; the inner dusky, with marginal white triangular spots. A narrow ring round the eye, and a broad longitudinal band on the side of the neck, white; loral

space, cheeks, fore part of neck, breast, and axillar feathers, black; the rest of the lower parts white, the lower primary coverts grey towards the end.

Length to end of tail 11⅞ inches, to end of wings 12½, to end of claws 14; extent of wings 25; wing from flexure 8¼; tail 3¼; bill along the ridge 1¼, along the edge of lower mandible 1¼; bare part of tibia ¾; tarsus 2; hind toe ⅛; middle toe 1⅛, its claw ¼; outer toe and claw 1⅛; inner toe 1. Weight 6½ oz.

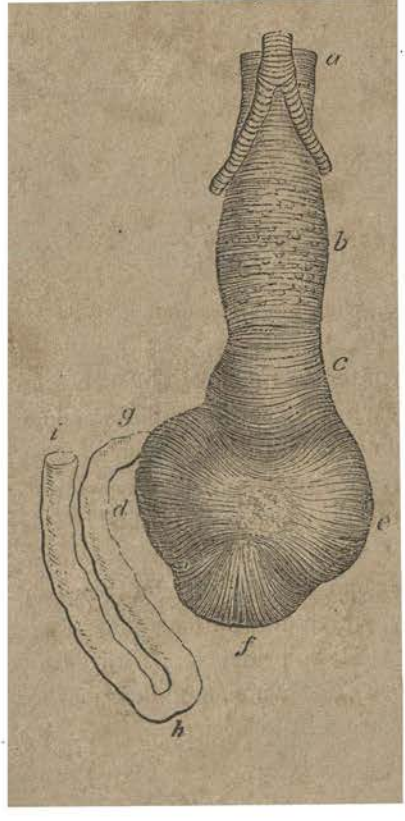
The female resembles the male, but has the black of the lower parts of a less deep tint.

Young about a week old.

Bill and feet dull greenish-brown. Iris brown. The general colour is pale brownish-yellow, mottled with dusky; a whitish ring round the eye; tail with a black band, rump whitish, primary quills dusky, the outer edges of the secondaries whitish.

The young in autumn.

Bill greyish-black; feet bluish-grey. The upper parts brownish-black, spotted with white, some of the spots yellow; the wings and tail as in the adult, but the latter tinged with grey, and having eight dark bars on all the feathers. The fore part and sides of the neck, and the sides of the body, greyish-white, mottled with brownish-grey; axillary feathers brownish-black; the rest of the lower parts white.



Adult in winter.

The adult in winter has the upper parts light greyish-brown, the margins of the feathers much lighter; the sides and fore parts of the neck pale grey, with dark grey streaks and spots; lower parts white. In other respects the colours are as in summer.

In an adult male of this species there is a double row of papillæ on the roof of the mouth. The tongue is 1 inch long, slender, tapering, emarginate and papillate at the base, grooved above, horny on the back. The œsophagus, *a*, is 5 inches long, at its upper part 4 twelfths in diameter, enlarged to ½ inch on the lower part of the neck. The proventriculus, *b*, ob-

W. H.

American Golden. Plover.

1. Summer Plumage. 2. Winter 3. Variety in March.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S.

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long, its greatest diameter 8 twelfths, its glandules oblong and about a twelfth in length. The stomach, *c, d, e, f,* is a very powerful gizzard of an irregular roundish form, 1 inch 5 twelfths long, 1 inch 3½ twelfths in breadth; its lateral muscles very large and distinct, the right, *d,* 4 twelfths thick, the left, *e,* 3 twelfths, the tendons large; the epithelium thick, longitudinally rugous, and of a reddish colour. The intestine, *g, h, i,* is 2 feet 2 inches long, its diameter about 2 twelfths; the cœca 2 inches 2 twelfths long, their diameter at the base half a twelfth, toward the end 2 twelfths; the rectum 3 twelfths in diameter, and 2½ inches long.

In the stomach were several shrimps. The lobes of the liver very unequal, the right being 2¼ inches in length, the other $1\frac{4}{12}$. No gall-bladder.

The trachea is wide, flattened, membranous, 4 twelfths broad at the upper part, gradually diminishing to 2 twelfths, its rings, which are very slender, about 100. The lateral muscles exceedingly thin, but becoming more distinct towards the lower part; the sterno-tracheal slender. Bronchi of moderate length, of about 20 half-rings.

AMERICAN GOLDEN PLOVER.

CHARADRIUS MARMORATUS, *Wagler.*

PLATE CCCXVI.—ADULT IN SUMMER, WINTER, AND SPRING.

The Golden Plover spends the autumn, winter, and part of the spring, in various portions of the United States, appearing in considerable numbers both along the coast and in the interior, and not unfrequently on our highest grounds. A much greater number, however, proceed in severe winters beyond the limits of our Southern States, and the partial migrations of this species are much influenced by the state of the weather. They are more abundant along the sea shores of the Middle and Eastern Districts from the middle of April to the beginning of May, whereas in autumn they range over the interior, and more especially the western prairies. In the early part of May they congregate in immense flocks, and commence their journey toward more northern regions, where they are said to breed.

This bird moves on the ground with sprightliness. When observed, it

often runs with considerable rapidity to some distance, suddenly stops short, nods once or twice, vibrating its body at the same time, and if it should imagine itself unnoticed, it often lies down and remains crouched until the danger is over. At the time of their departure from the north, and while on the sands or mud-bars on the sea-shore, they often raise their wings as if to air them for a few moments. While searching for food, they move in a direct manner, often look sidewise toward the ground, and pick up the object of their search by a peculiar bending movement of the body. They are frequently observed to pat the moist earth with their feet, to force worms from their burrows. In autumn they betake themselves to the higher grounds, where berries as well as insects are to be met with, and where they find abundance of grasshoppers.

When travelling to a considerable distance, the Golden Plover flies at the height of from thirty to sixty feet, in a regular manner, with considerable velocity, the flock, when large, forming an extended front, and moving with regular flappings, an individual now and then uttering a mellow note. Before alighting they often perform various evolutions, now descending and flying swiftly over the ground, then curving upwards or sidewise, closing and extending their ranks, until the sportsman is often tired of watching them, and, after all, the flock, just when he expects it to alight, may suddenly shoot off and fly to a distance. When they alight within shooting distance, the moment their feet touch the ground is the critical one, for they are generally in a compact body, and almost immediately afterwards they disperse. I have often observed them while flying from one place to another, suddenly check their course for a moment or two, as if to look at the objects below, in the manner of Curlews.

While at New Orleans, on the 16th of March, 1821, I was invited by some French gunners to accompany them to the neighbourhood of Lake St. John, to witness the passage of thousands of these birds, which were coming from the north-east, and continuing their course. At the first appearance of the birds early in the morning, the gunners had assembled in parties of from twenty to fifty at different places, where they knew from experience that the Plovers would pass. There stationed, at nearly equal distances from each other, they were sitting on the ground. When a flock approached, every individual whistled in imitation of the Plover's call-note, on which the birds descended, wheeled, and passing within forty or fifty yards, ran the gauntlet as it were. Every gun went off in succession, and with such effect that I several times saw a flock of a hundred or more reduced to a miserable remnant of five or six individuals. The game was brought up after each volley by the dogs, while their masters were charging their pieces anew. This sport was continued all day, and at sunset, when I left

one of these lines of gunners, they seemed as intent on killing more as they were when I arrived. A man near the place where I was seated had killed sixty-three dozens. I calculated the number in the field at two hundred, and supposing each to have shot twenty dozen, forty-eight thousand Golden Plovers would have fallen that day.

On inquiring if these passages were of frequent occurrence, I was told that six years before, such another had occurred immediately after two or three days of very warm weather, when they came up with a breeze from the north-east. Only some of the birds were fat, the greater number of those which I examined being very lean; scarcely any had food in their stomach, and the eggs in the ovaries of the females were undeveloped. The next morning the markets were amply supplied with Plovers at a very low price.

CHARADRIUS MARMORATUS, Wagler, Syst. Avium.

GOLDEN PLOVER, *Charadrius pluvialis*, Wils. Amer. Orn., vol. vii. p. 71. Winter.

CHARADRIUS PLUVIALIS, Bonap. Syn., p. 297.

CHARADRIUS PLUVIALIS, *Golden Plover*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 623.

AMERICAN GOLDEN PLOVER, *Charadrius marmoratus*, Aud. Orn. Biog., vol. v. p. 575.

Adult, $10\frac{1}{2}$, $22\frac{3}{8}$.

Migrates southward in autumn and winter in vast flocks, from the northern regions, resting by the way, both in the interior and along the coast. Breeds on the Northern Barren Grounds, and islands of the Arctic Sea.

Adult Male in spring.

Bill shorter than the head, straight, subcylindrical. Upper mandible with the dorsal line straight and slightly sloping for two-thirds of its length, then bulging a little and curving to the tip, which is rather acute, the sides flat and sloping at the base, convex towards the end, where the edges are sharp and inclinate. Nasal groove extended along two-thirds of the mandible, filled with a bare membrane; nostrils basal, linear, in the lower part of the membrane, open and pervious. Lower mandible with the angle long, narrow, but rounded, the sides at the base sloping outwards and flat, the dorsal line ascending and slightly convex, the edges sharp and involute towards the narrow tip.

Head of moderate size, oblong, rather compressed, the forehead rounded. Eyes large. Neck rather short. Body ovate, rather full. Wings long. Feet rather long, slender; tibia bare for a considerable space; tarsus rather compressed, covered all round with reticulated hexagonal scales; toes slender; the hind toe wanting; third or middle toe longest, fourth considerably longer than the second, all scutellate above and marginate, the outer connected with the middle toe by a membrane as far as the second joint; claws

small, compressed, slightly arched, slender but obtuse at the end, the inner edge of the middle claw dilated.

Plumage soft, blended, slightly glossed, the feathers rounded. Wings long and pointed; primary quills tapering, the first longest, the second a little shorter, the rest rapidly graduated; outer secondaries short, broad, obliquely rounded, inner tapering and elongated. Tail rather short, rounded, of twelve rounded feathers.

Bill black. Iris brown. Feet bluish-grey. The upper part of the head, the fore part of the back, and the scapulars are beautifully variegated with brownish-black and bright yellow, the latter in spots along the edges of the feathers. The hind part of the back greyish-brown, variegated with yellow of a duller tint; the tail brown, barred with white. The wings are hair-brown, the smaller coverts spotted with yellowish-white, the primary coverts and secondaries tipped with white. The inner secondaries like the scapulars. Part of the forehead, the loral space, a band over the eye, and the throat, are greyish-white; the sides of the neck and body variegated with brown, dull white, and yellowish. The breast and a broad band down the fore-neck are brownish-black, the latter margined on each side with white. Axillar feathers, and lower tail-coverts, white.

Length to end of tail 10½ inches, to end of wings 10¼, to end of claws, 11½; extent of wings 22⅜; wing from flexure 7; tail 3$\frac{2}{12}$; bill along the back $\frac{11}{12}$, along the edge of lower mandible 1$\frac{2}{12}$; bare part of tibia $\frac{3}{12}$; tarsus 1$\frac{7}{12}$, middle toe 1$\frac{1}{12}$, its claw $\frac{4}{12}$. Weight 5½ oz.

Adult in winter.

The black on the lower parts is peculiar to the breeding season; and after the autumnal moult, they become of a light greyish colour, spotted and streaked with deep grey. In other respects the plumage is similar to that described above.

Length to end of tail 10¾, to end of claws 11⅞; extent of wings 22⅝. Weight 4½ oz.

Light coloured variety.

Bill and feet greyish-blue. Iris deep brown. Upper part of head and back mottled with black and pale yellow; wing-coverts greyish, with white and dusky spots, as are the sides of the head and throat; a broad band of white over the eye; fore part of neck pale grey, fading into pale cream-colour and white; the breast and fore-neck with large spots of black.

This individual was killed in the breeding season.

Kildeer Plover.

1 Male 2. Female.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen. Phila.a

THE KILDEER PLOVER.

CHARADRIUS VOCIFERUS, *Linn.*

PLATE CCCXVII.—MALE AND FEMALE.

Reader, suppose yourself wandering over some extensive prairie, far beyond the western shores of the Mississippi. While your wearied limbs and drooping spirits remind you of the necessity of repose and food, you see the moon's silver rays glitter on the dews that have already clothed the tall grass around you. Your footsteps, be they ever so light, strike the ear of the watchful Kildeer, who, with a velocity scarcely surpassed by that of any other bird, comes up, and is now passing and repassing swiftly around you. His clear notes indicate his alarm, and seem to demand why *you* are there. To see him is now impossible, for a cloud has shrouded the moon; but on your left and right, before and behind, his continued vociferations intimate how glad he would be to see you depart from his beloved hunting-grounds. Nay, be not surprised if he should follow you until his eyes, meeting the glaring light of a woodsman traveller, he will wheel off and bid you adieu.

The Kildeer's large eyes seem to be given it to enable it to feed by night as well as by day. At any time after the breeding season, this species moves in loose flocks, seldom exceeding ten or fifteen individuals, which disperse over the space of an acre or two of ground. Yet some one of them always acts as a sentinel, for standing erect to the full stretch of its legs, it carefully watches all the moving objects around, as far as its eye can reach. Cows, horses, or sheep are none of its enemies, and among them it will seek for food; but let a man, or a dog, or any other animal bent on destruction, shew himself, and that instant the bird runs swiftly with a querulous note, and should any of these, his enemies, evince the least disposition to molest it, its beautiful wings and tail are spread, and away it goes, cheerily calling to its companions to follow.

The Kildeer is by most people called a "noisy bird and restless." Now to me it is any thing but this, unless indeed when it is disturbed by the approach or appearance of its enemies, more particularly man, of whom indeed few wild birds are fond. Watch them from under some cover that completely conceals you, and you will see them peaceably and silently follow

their avocations for hours. In this respect the Kildeer resembles the Lapwing of Europe, which is also called a restless and noisy bird, because men and dogs are ever in pursuit of the poor thing, which after all its vigilance often falls a prey to the sportsman, who condemns it merely because it endeavors to draw him from its nest or young. During winter, when undisturbed, the Kildeer is in fact an unusually silent bird. In Louisana, where it breeds and resides at all seasons, it has obtained the name of "Piallard," so strongly rooted are old prejudices.

The Kildeer, or more properly "Kildee," so named on account of its note, which may be imitated by the syllables *kildee, kildee, dee, dee, dee,* appear in much greater numbers in the interior than along the coast. Few are seen in the State of Maine; none, I believe, in Nova Scotia, any more than in Newfoundland or Labrador. Inland, however, these birds remove to a great distance north. Unless during winter, in fact, this species is not wont to approach the shores of the sea, but prefers the newly ploughed fields, the banks of clear rivers, or the elevated worn-out grounds of the interior. Few winter to the east of Boston, while during the cold season they abound in the Southern States, although thousands spend the most rigorous months in the Western Country. In the Floridas, Georgia, and South Carolina, you find them dispersed through the sugar, cotton, and rice fields; and now they are so gentle and so silent, that you can hardly conceive why they should be called noisy birds. Around the pools, upon the marshes, and along the oyster-beds at low tides, as well as on the extensive mud-flats, you will then meet with them diligently searching for food, and not neglecting to watch you with distrust. Even in the corn-fields and in company with Doves and Grakles, or by the side of some strolling Partridge, you may now and then spy the Kildeer. At this period I have sometimes got so near to it that I could clearly see the pale red margin of its beautiful eye. The bird would perhaps run a few steps, when, suddenly checking its course, it would stand still, erect and rigid. Should I level my gun in jest, he would that instant fly off low over the ground, removing to the distance of a hundred yards, alight running as it were, advance twenty or thirty steps more, and then stand still. I would now again approach it as before. Never try it the third time, reader, the Kildeer will denounce you as an enemy. It will stretch its wings, fly across a river or field, and leave you to amuse yourself as you may. Many a time have I been thus treated.

The flight of the Kildeer is strong and rapid, and is at times protracted to a great distance. It skims quite low over the ground, or plays at a great height in the air, particularly during the love season, when you may see these birds performing all sorts of evolutions on wing. On the ground their speed is such that it has become proverbial, and to "run like a Kildee," is

to move with the utmost possible agility. Their ordinary posture when standing, might be called stiff, were they not so beautiful in form and colouring. When pursued over a large space, they are able to lead you from one spot to another more than twenty times in the course of an hour; and the more you follow them, the more shy do they become, until wearied and hungry, as the fox said of the grapes, you will probably begin to think them poor and insipid after all.

Now you see the Kildee wading in the water, and observe how it splashes it about. Down it lays itself, and with fluttering wings, seems to enjoy the sight of the drops trickling over its silky back. Now dripping and almost soaked to the skin, it retires to the warm earth, to dry its plumage and clear it of insects.

This species breeds in Louisiana about the beginning of April; in the Middle States a full month later, as well as in the Western Country and farther north. Not one, however, has ever been found breeding in the low lands of South-Carolina, although these birds remain there until the beginning of May. The nests are various, some being merely a hollow scooped in the bare ground, while at other times the Kildee searches for a place on the edge of a pond, forms a hollow, and constructs a nest of grass, at the foot of a thick bunch of plants. Now and then small pebbles and fragments of shells are raised in the form of a rim around the eggs, on which the sitting bird is seen as if elevated two or three inches. WILSON saw nests of this kind; so have I; and the circumstance appeared as strange to me as that of the birds not breeding in the low lands of the Carolinas. The eggs are almost always four, pyriform, well pointed at the small end, an inch and five-eighths in length, an inch and one-eighth in diameter at the broadest part, and of a deep cream-colour, pretty generally marked all over with small irregular blotches of purplish-brown and black. The young, as soon as hatched, run about. At this period, or during incubation, the parents, who sit alternately on the eggs, never leaving them to the heat of the sun, are extremely clamorous at sight of an enemy. The female droops her wings, emits her plaintive notes, and endeavours by every means she can devise to draw you from the nest or young. The male dashes over you in the air, in the manner of the European Lapwing, and vociferates all the remonstrances of an angry parent whose family is endangered. If you cannot find pity for the poor birds at such a time, you may take up their eggs and see their distress; but if you be at all so tender-hearted as I would wish you to be, it will be quite unnecessary for me to recommend mercy!

Few Plovers with which I am acquainted, acquire their full plumage sooner than this species. Before December you can observe no difference

between the young birds and their parents; nay, by this time, like most other species, the former are as fully able to fly as at any other period.

While I was residing in Pennsylvania, the son of my tenant the miller was in the habit of catching newly-hatched birds of every sort, to bait his fish-hooks. I had rather peremptorily remonstrated against this barbarous practice, although, I believe, without effect. One morning I met him returning from the shores of the Perkioming creek, with his hat full of young Kildees. He endeavoured to avoid me, but I made directly up to him, peeped into his hat and saw the birds. On this I begged of him to go back and restore the poor things to their parents, which he reluctantly did. Never had I felt more happy than I did when I saw the young Plovers run off and hide under cover of the stones.

The Kildee seems to be remarkably attached to certain localities at particular periods. Whilst at General HERNANDEZ's in East Florida, I accidentally wounded one near a barn on the plantation of my accomplished host. Yet it returned to the same spot for the ten days that I remained there, although it always flew off when I approached it.

The food of this species consists of earth-worms, grasshoppers, crickets, and coleopterous insects, as well as small crustacea, whether of salt or fresh-water, and snails. Now and then they may be seen thrusting their bills into the mud about oysters, in search of some other food. During autumn, they run about the old fields and catch an insect which the Blue-bird has been watching with anxious care from the top of a withering mullein stalk. They run briskly after the ploughman, to pick up the worms that have been turned out of their burrows. Now standing on the grassy meadow, after a shower, you see them patting the moist ground, to force out its inhabitants. During winter, you meet with them on elevated ground, or along the margins of the rivers; but wherever you observe one about to pick up its food, you clearly see its body moving in a see-saw manner on the joints of the legs, until the former being so placed that the bill can reach the ground, the object is seized, and the usual horizontal position is resumed.

The flesh of the Kildee is generally indifferent, unless in early autumn, when the young birds of that season are fat, juicy, and tender. At all seasons of the year, the Kildee is, however, shot by inexperienced sportsmen, and many of these birds are offered for sale in our markets. Little difference is observed at any period in the plumage of the adult birds.

KILDEER PLOVER, *Charadrius vociferus*, Wils. Amer. Orn., vol. vii. p. 73.

CHARADRIUS VOCIFERUS, Bonap. Syn., p. 297.

CHARADRIUS VOCIFERUS, *Kildeer Plover*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 368

KILDEER PLOVER, Nutt. Man., vol. ii. p. 22.

KILDEER PLOVER, *Charadrius vociferus*, Aud. Orn. Biog., vol. iii. p. 191; vol. v. p. 577

Male, 10, 20.

Common. Breeds from Texas to the eastern base of the Rocky Mountains, and in all the central and Atlantic districts to Massachusetts. Fur Countries.

Adult Male in summer.

Bill shorter than the head, straight, somewhat cylindrical. Upper mandible with the dorsal line straight for two-thirds of its length, then bulging a little and curving to the tip, which is rather acute, the sides flat and sloping at the base, convex towards the end, where the edges are sharp and inclinate. Nasal groove extended along two-thirds of the mandible, filled with a bare membrane; nostrils basal, linear, in the lower part of the membrane, open and pervious. Lower mandible with the angle long, narrow, but rounded, the sides at the base sloping outwards and flat, the dorsal line ascending and slightly convex, the edges sharp and involute towards the narrow tip.

Head of moderate size, oblong, rather compressed, the forehead rounded. Eyes large. Neck rather short. Body ovate, rather slender. Wings long. Feet long, slender; tibia bare a considerable way above the joint; tarsus rather compressed, covered all round with reticulated hexagonal scales; toes slender; the hind toe wanting; third or middle toe longest, outer toe considerably longer than inner, all scutellate above and marginate, the outer connected with the middle toe by a membrane as far as the second joint; claws small, compressed, slender, but obtuse at the end, the inner edge of the middle claw slightly dilated.

Plumage soft and blended; the feathers rounded, those of the back somewhat distinct. Wings long and pointed; primary quills tapering, the first longest, the second a little shorter, the rest rapidly graduated; inner secondaries tapering and elongated, so as nearly to equal the longest primaries. Tail rather long, much rounded or graduated, of twelve rather broad rounded feathers.

Bill black. Edges of eyelids bright red; iris dark brown. Feet light greyish-blue, the hind part of the tarsus pale flesh colour. Upper part of the head, the back, the smaller wing-coverts, and the secondary quills, yellowish-brown. Lower parts white. A brown bar over the lower part of the forehead, and passing under the eye to the occiput; over this a white band on the forehead, surmounted by a brownish-black band between the eyes; behind the eyes also a short white band, ending in light red. The middle of the neck is encircled with a broad brownish-black collar, and on its lower part anteriorly between the wings is a narrower band of the same colour. Primaries brownish-black, each with a white mark, linear on the outer, enlarging on the inner quills. Secondaries, excepting the inner, white, but most of them with a large patch of blackish-brown towards the end; their

tips and those of most of the primaries white, as are those of the primary and secondary coverts. Rump and upper tail-coverts bright yellowish-red. Tail-feathers of the same colour at the base, the middle feathers brown, all with a broad subterminal band of black, the tips white, those of the four middle feathers pale reddish; the outer feather on each side white, with three black bands on the inner web.

Length to end of tail 10 inches, to end of wings 9, to end of claws 9½; extent of wings 20; wing from flexure 6½; tail 4; bill along the back $\frac{10}{12}$, along the edge $\frac{11}{12}$; tarsus $1\frac{5}{12}$; middle toe $\frac{11}{12}$, its claw $\frac{3}{12}$. Weight 5¾ oz.

Adult Female in summer.

The female resembles the male.

The mouth is exceedingly narrow, its width being only 2 twelfths. The palate has two longitudinal ridges, and anteriorly a few very prominent papillæ. The tongue 7 twelfths long, very narrow, deeply channelled above, with involute edges. The œsophagus is 3 inches 10 twelfths long, 2 twelfths in width; the proventriculus 5½ twelfths. The stomach is broadly elliptical, 10 twelfths long, 8½ twelfths in breadth; its lateral muscles very large; the epithelium thick, with prominent longitudinal rugæ. The proventricular glands form a belt 6½ twelfths in breadth. The intestine is 14½ inches long, its width 2 twelfths. Cœca 1 inch 9 twelfths long, their greatest width 1½ twelfths; their distance from the extremity 1½ inches. The trachea is 2 inches 9 twelfths long, from 2 twelfths to 1½ twelfths in breadth, flattened; the rings feeble, about 90 in number. Bronchi of moderate width and about 15 half rings. The lateral muscles thin, the sterno-tracheal slender. There is a single pair of inferior laryngeal muscles, or a prolongation of the lateral muscles, going to the first bronchial ring. The individual examined is a male.

Rocky Mountain Plover

Female.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

ROCKY-MOUNTAIN PLOVER.

CHARADRIUS MONTANUS, *Towns.*

PLATE CCCXVIII.—FEMALE.

For the following brief account of this bird, I am indebted to my learned and obliging friend THOMAS NUTTALL.

"This remarkable species, so much allied to the *Charadrius Wilsoni*, was scarcely seen by us for more than one or two days, and then on the central table-land of the Rocky Mountains, in the plains near the last of the streams of the Platte, pursued in our western and northern route. It being the month of July when we saw it, there is little doubt but that it was breeding in this subalpine region. The only individual shot, was seen skulking and running through the wormwood bushes which so generally clothe those arid and dry wastes. After running some time, it would remain perfectly still, as if conscious of the difficulty of distinguishing it from the colour of the grey soil on which it stood. All that we saw were similar to the present individual, and none, however flushed, took to the wing. We do not recollect hearing from it the slightest complaint or note of any kind, being intent probably on concealing its young or eggs by a perfect silence."

The skin from which I made my drawing was that of a female; and it is my opinion, that the male, when found, will have as distinct markings as those exhibited by *Charadrius melodus* or *Charadrius semipalmatus*.

CHARADRIUS MONTANUS, Towns., Journ. Acad. Nat. Sc. Philadelphia, vol. vii. p. 192.
ROCKY-MOUNTAIN PLOVER, *Charadrius montanus*, Aud. Orn. Biog., vol. iv. p. 362

Female, 8¼, wing 6⅛.
Rocky Mountains.
Adult Female.

Bill shorter than the head, straight, somewhat cylindrical. Upper mandible with the dorsal line straight to beyond the middle, then bulging a little and curving to the rather acute tip, which projects beyond that of the lower mandible, the sides flat and sloping at the base, convex towards the end. Nasal groove extended to the middle of the bill; nostrils basal, linear, open and pervious. Lower mandible with the angle rather short, the sides at the

base sloping outwards; the dorsal line ascending and slightly convex, the edges sharp, the tip rather acute.

Head of moderate size, oblong, the forehead rounded. Legs rather long and slender; tibia bare half an inch above the joint; tarsus slender, compressed, covered with angular scales, of which the anterior are much larger; toes short, slender, with numerous scutella above, marginate; the outer connected with the middle by a short membrane. Claws small, compressed, slightly arched, rather acute.

Plumage soft, the feathers rather distinct on the upper parts, blended on the lower. Wings long and pointed; primary quills tapering, the first longest by a quarter of an inch, the rest rapidly graduated; inner secondaries tapering and elongated, one of them nearly as long as the outer primary when the wing is closed. Tail of moderate length, even, of twelve feathers.

Bill black. Feet light dull brownish-yellow. Forehead, a band over the eye, fore part of neck, and all the rest of the lower surface, white; top of the head and nape dark yellowish-brown, sides and hind part of the neck dull ochre-yellow, which is the prevailing colour on the upper parts, the feathers being broadly margined with it, while their central portion is greyish-brown. Wing-coverts lighter; primary coverts and quills dusky, their shafts and margins white, that colour becoming more extended on the inner and on some of the secondaries, so as to form a conspicuous patch on the wing; inner secondaries like the back. Tail yellowish-brown, tipped with yellowish-white, the two outer broadly margined with the same.

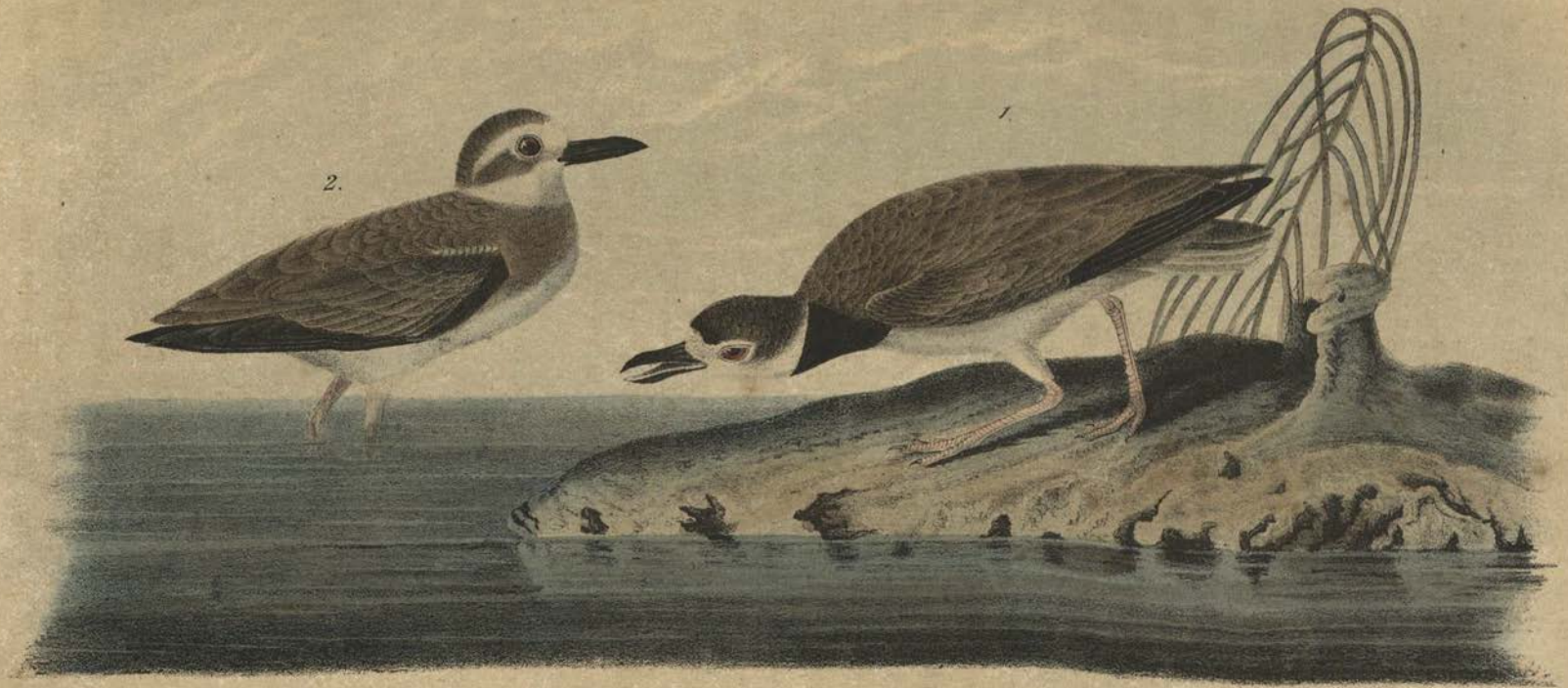
Length to end of tail about $8\frac{1}{4}$ inches, to end of wings the same, to end of claws $9\frac{1}{4}$; wing from flexure $6\frac{1}{8}$; tail $2\frac{1}{2}$; tarsus $1\frac{4}{8}$; middle toe $\frac{3}{4}$, claw $\frac{1}{4}$.

WILSON'S PLOVER.

CHARADRIUS WILSONIUS, *Ord.*

PLATE CCCXIX.—MALE AND FEMALE.

Reader, imagine yourself standing motionless on some of the sandy shores between South Carolina and the extremity of Florida, waiting with impatience for the return of day;—or, if you dislike the idea, imagine me there. The air is warm and pleasant, the smooth sea reflects the feeble glimmerings



Wilson's Plover.

Drawn from Nature by J.J Audubon, F.R.S.F.L.S.

1. Male 2. Female.

Lith.ⁿ Printed & Col.ᵈ by J. T. Bowen, Phila.ᵈ

of the fading stars, the sound of living thing is not heard; nature, universal nature, is at rest. And here am I, inhaling the grateful sea-air, with eyes intent on the dim distance. See the bright blaze that issues from the verge of the waters! and now the sun himself appears, and all is life, or seems to be; for, as the influence of the Divinity is to the universe, so is that of the sun to the things of this world. Far away beyond that treacherous reef, floats a gallant bark, that seems slumbering on the bosom of the waters like a silvery sea-bird. Gentle breezes now creep over the ocean, and ruffle its surface into tiny wavelets. The ship glides along, the fishes leap with joy, and on my ear comes the well known note of the bird which bears the name of one whom every ornithologist must honour. Long have I known the bird myself, and yet desirous of knowing it better, I have returned to this beach many successive seasons for the purpose of observing its ways, examining its nest, marking the care with which it rears its young, and the attachment which it manifests to its mate. Well, let the scene vanish! and let me present you with the results of my observations.

WILSON'S Plover! I love the name because of the respect I bear towards him to whose memory the bird has been dedicated. How pleasing, I have thought, it would have been to me, to have met with him on such an excursion, and, after having procured a few of his own birds, to have listened to him as he would speak of a thousand interesting facts connected with his favourite science and my ever-pleasing pursuits. How delightful to have talked, among other things, of the probable use of the *double claws* which I have found attached to the toes of the species which goes by his name, and which are also seen in other groups of shore and sea birds. Perhaps he might have informed me why the claws of some birds are pectinated on one toe and not on the rest, and why that toe itself is so cut. But alas! WILSON was with me only a few times, and then *nothing* worthy of his attention was procured.

This interesting species, which always looks to me as if in form a miniature copy of the Black-bellied Plover, is a constant resident in the southern districts of the Union. There it breeds, and there too it spends the winter. Many individuals, no doubt, move farther south, but great numbers are at all times to be met with from Carolina to the mouths of the Mississippi, and in all these places I have found it the whole year round. Some go as far to the eastward as Long Island in the State of New York, where, however, they are considered as rarities; but beyond this, none, I believe, are seen along our eastern shores. This circumstance has seemed the more surprising to me, that its relative the Piping Plover proceeds as far as the Magdeleine Islands; and that the latter bird should also breed in the Carolinas a month earlier than WILSON'S Plover ever does, seems to me not less astonishing.

WILSON'S Plover begins to lay its eggs about the time when the young of the Piping Plover are running after their parents. Twenty or thirty yards from the uppermost beat of the waves, on the first of June, or some day not distant from it, the female may be seen scratching a small cavity in the shelly sand, in which she deposits four eggs, placing them carefully with the broad end outermost. The eggs, which measure an inch and a quarter by seven and a half eighths, are of a dull cream colour, sparingly sprinkled all over with dots of pale purple and spots of dark brown. The eggs vary somewhat in size, and in their ground colour, but less than those of many other species of the genus. The young follow their parents as soon as they are hatched, and the latter employ every artifice common to birds of this family, to entice their enemies to follow them, and thus save their offspring.

The flight of this species is rapid, elegant, and protracted. While travelling from one sand-beach or island to another, they fly low over the land or water, emitting a fine clear soft note. Now and then, when after the breeding season they form into flocks of twenty or thirty, they perform various evolutions in the air, cutting backwards and forwards, as if inspecting the spot on which they wish to alight, and then suddenly descend, sometimes on the sea-beach, and sometimes on the more elevated sands at a little distance from it. They do not run so nimbly as the Piping Plovers, nor are they nearly so shy. I have in fact frequently walked up so as to be within ten yards or so of them. They seldom mix with other species, and they show a decided preference to solitary uninhabited spots.

Their food consists principally of small marine insects, minute shell-fish, and sand-worms, with which they mix particles of sand. Towards autumn they become almost silent, and being then very plump, afford delicious eating. They feed fully as much by night as by day, and the large eyes of this as of other species of the genus, seem to fit them for nocturnal searchings.

The young birds assemble together, and spend the winter months apart from the old ones, which are easily recognised by their lighter tints. While in the Floridas, near St. Augustine, in the months of December and January, I found this species much more abundant than any other; and there were few of the Keys that had a sandy beach, or a rocky shore, on which one or more pairs were not observed.

WILSON'S PLOVER, *Charadrius Wilsonius*, Ord. Amer. Orn., vol. ix. p. 77.
CHARADRIUS WILSONIUS, Bonap. Syn., p. 296.
WILSON'S PLOVER, Nutt. Man., vol. ii. p. 21.
WILSON'S PLOVER, *Charadrius Wilsonius*, Aud. Orn. Biog., vol. iii. p. 73; vol. v. p. 577.

Male, $7\frac{8}{12}$, $14\frac{1}{4}$.

Common, and breeds from Texas along the coast to Long Island. Resident in the Southern States.

Adult Female.

Bill as long as the head, stout, straight, cylindrical, obtuse, and somewhat turgid at the tip. Upper mandible with the dorsal line straight until towards the end, when it is slightly arched and declinate, the sides convex, the edges sharp and slightly inflected. Nasal groove extending to about half the length of the bill; nostrils lateral, linear, direct, in the lower part of the bare membrane. Lower mandible with the angle rounded, the dorsal line convex and ascending, the back broad, the sides convex, the edges inflected.

Head large, a little compressed, the forehead prominent; eyes large. Neck short. Body rather full. Wings long. Legs rather long, slender; tibia bare a little above the joint; tarsus of ordinary length, somewhat compressed, covered with angular scales; toes small and slender, covered above with numerous small scutella, first toe wanting, fourth longer than second, third longest, the two outer connected at the base by a pretty large web; claws, small, slightly arched, much compressed, obtuse.

Plumage soft and rather blended. Wings long, narrow, primaries nearly straight, narrow and tapering, the first longest, second a little shorter, the rest rapidly graduated; outer secondaries very short, inner elongated so as to extend as far as the second primary. Tail of moderate length, straight, rounded, of twelve feathers.

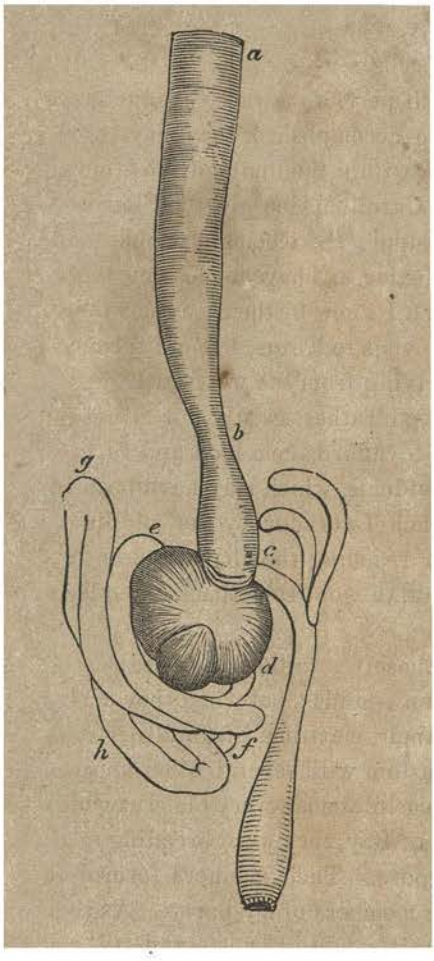
Bill black. Edges of eyelids grey; iris reddish-brown. Feet light flesh-coloured; claws dusky. The general colour of the plumage above is light brownish-grey. Lower part of forehead and a broad streak over the eyes white; throat white, that colour extending narrow behind so as to form a collar, below which is another of the general tint of the back across the fore neck. The rest of the lower parts white. Quills and tail of a deeper greyish-brown, the shafts white, the two lateral tail-feathers whitish.

Length to end of tail $7\frac{8}{12}$ inches, to end of wings $7\frac{7}{12}$, to end of claws $8\frac{8}{12}$; extent of wings $14\frac{1}{4}$; wing from flexure 5; tail $2\frac{1}{4}$; bill along the back $\frac{9}{12}$, along the edges 1; tarsus $1\frac{2}{12}$; middle toe $\frac{10}{12}$, its claw $\frac{3}{12}$.

Young Male in winter plumage.

The adult male is similar in colouring to the female, as described above, but the lore is dusky, the white band on the forehead is surmounted by one of brownish-black, and there is a half collar of the same colour across the neck in front.

The palate as in the other species, but at its anterior part commence three prominent ridges, which run to the end of the upper mandible. The tongue is 8 twelfths long, rather fleshy, narrow, flattened above, with a median groove, the point narrow, but rounded, with a thin horny edge. The width of the mouth is $4\frac{1}{4}$ twelfths. The œsophagus, *a b c*, is 3 inches 4 twelfths long, much wider than in the two preceding species, its breadth at the top



being 5 twelfths, at the distance of 1 inch 4 twelfths; the proventriculus, *b c*, 4 twelfths in breadth, its glandules forming a belt 6 twelfths in breadth. The stomach, *c d e*, is rather large, roundish, compressed, 9 twelfths in length, 10 twelfths in breadth; the lateral muscles 5 twelfths in thickness; the epithelium remarkably dense, thick, with two broad granulated ridges on each side, forming grinding surfaces. The intestine, *e f g h*, is rather short, and wider than in the other species; its length 9½ inches, its width at the upper part 4 twelfths, diminishing to 2 twelfths. Cœca 1 inch 4 twelfths long, cylindrical, 1 twelfth in width; their distance from the extremity 1¼ inches. Trachea 2¼ inches long, flattened, from 2 twelfths to 1 twelfth in breadth; its rings about 90, cartilaginous. Bronchial half rings about 15. Lateral and sterno-tracheal muscles strong; a single pair of inferior laryngeal muscles. Adult male.

AMERICAN RING PLOVER.

CHARADRIUS SEMIPALMATUS, *Bonap.*

PLATE CCCXX.—MALE AND YOUNG.

I have had great pleasure in observing the migrations of this species, particularly in early spring, when great numbers enter the southern portions of the United States, on their way northward, where it is now well known to

American Ring Plover.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. 1. Adult Male 2. Young in August. Lith.d Printed & Col.d by J. T. Bowen, Phil.a

breed. At that period, whatever attempts you may make to prevent their progress, they always endeavour to advance eastward; whereas in early autumn, they will rove in any direction, as if perfectly aware that the task imposed upon them by Nature having been accomplished, they may enjoy their leisure. Those which pass the winter within the limits of the Union, are mostly found along the shores of South Carolina, Georgia, the Floridas, and as far south as the mouths of the Mississippi; there being no doubt that many remain on the coasts of the Gulf of Mexico, as I have found some there early in spring, before observing those which I knew by their manners to be recently arrived. In the course of my late visit to Texas, I found them on Galveston Bay, where I observed some arriving from the westward.

During their polar migration, they proceed rather swiftly, for although they appear to touch at every place likely to afford them food and repose, they seldom tarry long. Thus, many individuals, which may have been in Texas early in April, not unfrequently reach Labrador by the middle of May; although some are a month later in reaching the ultimate point of their journey, which, according to Dr. RICHARDSON, sometimes extends as far as the Arctic Regions.

While with us in spring, they confine themselves to the sandy beaches of our sea-coasts, whether on the mainland or on islands; but when they arrive at their breeding stations, they abandon their maritime life, and resort to mountainous mossy lands, as is also the custom with several other species. On my way to Labrador, I saw some of them in almost every place at which we landed; and when I reached Nastasguan Bay, they were breeding in all the spots that were adapted for that purpose. Their manners formed an agreeable subject of observation to all the members of my party. As soon as one of us was noticed by a Ring Plover, it would at once stand still and become silent. If we did the same, it continued, and seldom failed to wear out our patience. If we advanced, it would lower itself and squat on the moss or bare rock until approached, when it would suddenly rise on its feet, droop its wings, depress its head, and run with great speed to a considerable distance, uttering all the while a low rolling and querulous cry, very pleasing to the ear. On being surprised when in charge of their young, they would open their wings to the full extent, and beat the ground with their extremities, as if unable to rise. If pursued, they allowed us to come within a few feet, then took flight, and attempted to decoy us away from their young, which lay so close that we very seldom discovered them, but which, on being traced, ran swiftly off, uttering a plaintive *peep* often repeated, that never failed to bring their parents to their aid. At Labrador, the Ring Plover begins to breed in the beginning of June. On the 2nd of July, I procured several young birds apparently about a week old; they ran

briskly to avoid us, and concealed themselves so closely by squatting, that it was very difficult to discover them even when only a few feet distant.

This species, like the Piping Plover, *Charadrius melodus*, forms no nest; and whilst the latter scoops a place in the sand for its eggs, the Ring Plover forms a similar cavity in the moss, in a place sheltered from the north winds and exposed to the full rays of the sun, usually near the margins of small ponds formed by the melting of the snow, and surrounded by short grass. Some of these pools are found on the tops of the highest rocks of that country. The eggs, like those of all the family, are four, and placed with the small ends together. They are broad at the larger end, rather sharp at the other, measure 1¼ inches in length, 7⅞ inches in their greatest breadth, are of a dull yellowish colour, irregularly blotched and spotted all over with dark brown of different tints. The young are at first of a yellowish-grey colour, prettily marked with darker spots on the shoulders and rump. As soon as their parents dismissed them, they were observed searching for food among the drying cod-fish, and along the beaches.

By the 12th of August, all the individuals which had bred in Labrador and Newfoundland, had taken their departure, migrating southward in company with the Phalaropes and Schintz's Sandpipers. Many of these birds proceed by our great lakes and rivers, they being sometimes seen in September along the shores of the Ohio and Mississippi. At this period they are now and then observed on ploughed lands, where they appear to procure different species of seeds and insects. Along the whole extent of our Atlantic shores they are numerous at this season, and great numbers are killed, the flesh of the young birds especially being juicy and tender.

The flight of this species is swift and sustained. They are fond of associating with other birds of similar habits, and are generally unsuspicious, so that they are easily approached. When on wing, their notes are sharp, sonorous, and frequently repeated. The young members of my party were often much amused by witnessing our pointer chasing the old birds, whilst the latter, as if perfectly aware of the superiority in speed, would seem to coax him on, and never failed to exhaust him by flying along the declivities of the rocks up to their summits, and afterwards plunging downwards to the base, thus forming great circuits over a limited range. Their food consists of small crustacea, mollusca, and the eggs of various marine animals. The old males are very pugnacious in the breeding season, and engage in obstinate conflicts, drooping their wings, and trailing their tail fully spread out in the manner of some species of Grouse on similar occasions.

RING PLOVER, *Tringa Hiaticula*, Wils. Amer. Orn., vol. vii. p. 65.
CHARADRIUS SEMIPALMATUS, Bonap. Syn., p. 296.

American Ring Plover, *Charadrius semipalmatus*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 367.

Semipalmated Ringed Plover, Nutt. Man., vol. ii. p. 21.

American Ringed Plover, *Charadrius semipalmatus*, Aud. Orn. Biog., vol. iv. p. 256; vol. v. p. 579.

Male, 7¼, 14.

From Texas to the Arctic Regions, after passing through the interior, as well as along the Atlantic shores. Breeds in Labrador and the Fur Countries. Many spend the winter in the Floridas.

Adult Male.

Bill shorter than the head, straight, somewhat cylindrical. Upper mandible with the dorsal line straight for half its length, then bulging a little and curving to the tip, which is rather acute, the sides sloping at the base, convex towards the end, where the edges are sharp and direct. Nasal groove extended along more than half of the mandible; nostrils basal, linear, in the lower part of the membrane, open, and pervious. Lower mandible with the angle short, narrow, but rounded, the sides at the base sloping outwards and flat, the dorsal line ascending and slightly convex, the edges sharp and involute towards the tip.

Head of moderate size, oblong, rather compressed, the forehead rounded. Eyes large. Neck rather short. Body ovate, compact. Wings long. Feet slender, of moderate length; tibia bare a considerable way above the joint; tarsus of moderate length, rather compressed, covered all round with subhexagonal scales; toes slender; the hind toe wanting; third or middle toe much longer than the outer, which exceeds the inner; all with numerous scutella; the outer connected with the middle toe by a web, which extends to the second joint of the former and runs along the edge of the latter, forming a broad margin, the outer toe also connected with the middle toe by a short membrane which does not extend more than half-way to the second joint. Claws small, slightly arched, compressed, rather blunt, that of the middle toe having the inner edge dilated.

Plumage soft and blended; the feathers rounded, those of the back somewhat distinct. Wings long and pointed; primary quills tapering, the first longest, the second a little shorter, the rest rapidly graduated; outer secondaries incurved and obliquely emarginate; the inner tapering and elongated, one of them reaching to half an inch from the tip of the longest primary. Tail of moderate length, considerably rounded, of twelve feathers.

Bill black, its basal half rich orange. Iris deep hazel. Feet pale flesh-colour, claws black. Forehead, loral space, and a band passing below the eye and including the auriculars, black; the rest of the head above and the nape, light greyish-brown, tinged with dull olive. A broad band between

the eyes, continuous with a streak over them, a small band on the lower eyelid, and a ring on the middle of the neck, enlarged in front so as to cover the throat, pure white. A broad ring of black on the lower part of the neck, broader in front. All the lower parts and the sides of the rump white. The upper parts of the same greyish-brown as the head, the scapulars and elongated inner secondaries more decidedly glossed with olive. Alula, primary coverts, and primary quills dusky, the coverts tipped with white, the outer primaries, with a portion of the shaft, white, the inner with an elongated patch of white on the outer web in addition, and the proximal part of the inner web of the same colour. Secondary quills with a narrow terminal margin of white, which is much enlarged on (or in some specimens covers) the two next to the elongated ones, which are externally margined with brownish-white. Tail pale greyish-brown, brownish-black towards the end, the tip white, enlarging on the outer, and including the whole of the lateral feather, and the outer web of the next.

Length to end of tail 7¼ inches, to end of wings 8, to end of claws 7; extent of wings 14; bill along the ridge ½, along the edge of lower mandible $\frac{7}{12}$; wing from flexure 5, tail 2½; tarsus $1\frac{1}{12}$, middle toe and claw $1\frac{3}{12}$. Weight 1½ oz.

The female is a little larger than the male, but similar, although the black markings are tinged with brown.

Young in September.

Bill dusky, at the base yellowish. Feet pale yellowish-green, claws dusky. Upper parts lighter than in the adult, the feathers margined with pale yellowish-grey; no black band on the forehead, or on the neck, but a patch of dusky on the side of the neck and breast; the band from the bill to behind the eye greyish-brown.

This species exhibits a very intimate affinity to *Charadrius Hiaticula* of Europe, which is precisely similar in form, proportions, and colouring, but considerably larger, and having the feet orange-coloured, with the webs much less extended.

Width of mouth 2 twelfths. Tongue 4 twelfths long, very concave above, rounded at the point. Œsophagus 2 inches 8 twelfths long, 3 twelfths in breadth. Proventriculus 3½ twelfths broad, its glandular belt 6 twelfths. Stomach oblong, 9 twelfths by 7 twelfths; its muscles large; the epithelium with numerous rugæ. Intestine 14 inches long, 2 twelfths in breadth. Cœca 1 inch from the extremity, 1½ inches long, 1½ twelfths in width. Trachea 2 inches long, 1½ twelfths in breadth; its wings about 70, very feeble. Bronchial half rings about 15. The muscles as in the last species.

In the genus *Charadrius*, the œsophagus is thus narrow or of moderate width, without crop or remarkable dilatation. The proventriculus is large,

Piping Plover

1 Male 2 Female

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Phila.a

bulbiform, with very numerous small cylindrical glands disposed in a broad belt. The stomach is roundish or broadly elliptical, moderately compressed; its lateral muscles large, as are the tendons; the lower muscle prominent and thin; the upper of considerable size; the epithelium dense, and longitudinally rugous. The intestine is rather long, and of moderate width; the rectum considerably dilated; the cœca long, very slender, cylindrical, contracted at the base, with the tip blunt. The lobes of the liver are very unequal, the right being largest; there is no gall-bladder. The trachea is rather wide, flattened; its rings very numerous, narrow, cartilaginous, the lower ring large; two dimidiate rings. Bronchi rather wide, of from 15 to 20 half rings. Lateral muscles moderate, sending a slip to the last dimidiate ring.

THE PIPING PLOVER.

CHARADRIUS MELODUS, *Ord.*

PLATE CCCXXI.—MALE AND FEMALE.

During the spring and summer months, this pretty little Plover is found on the sandy beaches of our extensive coasts, from the southern point of the Floridas to the confines of Maine. As you proceed towards Labrador, you find it in every suitable place, as far as the Magdeleine Islands, on the sands of which I saw many that were paired and had eggs on the 11th of June, 1833. It breeds on all parts of the eastern coast of the United States, wherever the locality is adapted to its habits. On the 3rd of May, this bird was found with eggs on the Keys of the Floridas; about a month later, you may meet with it in the States of Maryland, New Jersey, and New York. Those which leave the south at the approach of spring, return to it about October; and during the whole winter you may find them on the sandy beaches, from South Carolina to the western coast of the Floridas. The species, therefore, may be considered as resident with us.

While migrating eastward, the Piping Plovers proceed in pairs; and should one of these on its way find a convenient place for breeding, and remain there, several others are often induced to take up their abode in the neighbourhood. In autumn, they go in flocks of twenty or thirty individuals.

and at times associate with other species, particularly the Turnstone, in whose company I have found them abundantly on the coast of Florida, in the winter months. They never proceed to any distance inland, even along the sandy margins of our largest rivers; nor are they seen along very rocky shores or places covered with deep mud.

The favourite breeding stations of this species are low islands, mostly covered with drifting sand, having a scanty vegetation, and not liable to inundation. In such a place many pairs may be found, with nests thirty or forty yards apart. The nest is sometimes placed at the foot of a tuft of withered grass, at other times in an exposed situation. A cavity is merely scooped out in the soil, and there are deposited in it four eggs, which are in a great measure hatched by the heat which the sand acquires under the influence of a summer sun; but in rough weather, and always by night, the female is careful to sit upon them. Her mate is extremely attentive to her during the period of incubation, and should you happen to stroll near the nest, you are sure to meet him at his station. The eggs, which are four, and have their points placed together, measure one inch and one-eighth by seven and a half eighths, are pyriform, broad, and flatly rounded at the larger end, and tapering directly to the smaller, which is also rounded. They are of a pale bluish-buff colour, sprinkled and lined nearly all over with dark red, brown, and black. Only one brood is raised in the season. The young which go abroad immediately after they are hatched, run with remarkable speed, and, at the least note of the parent bird indicative of danger, squat so closely on the sand that you may walk over them without seeing them. Their downy covering is grey, mottled with brown; their bill almost black. If taken up in the hand, they emit a soft plaintive note resembling that of the old bird. The strange devices which their parents at this time adopt to ensure their safety, cannot fail to render the student of nature very unwilling to carry them off without urgent necessity. You may see the mother, with expanded tail and wings trailing on the ground, limping and fluttering before you, as if about to expire. It is true you know it to be an artifice, but it is an artifice taught by maternal love; and, when the bird has fairly got rid of her unwelcome visiter, and you see her start up on her legs, stretch forth her wings, and fly away piping her soft note, you cannot but participate in the joy that she feels.

The flight of this Plover is extremely rapid, as well as protracted. It passes through the air by glidings and extended flappings, either close over the sand, or high above the shores. On the ground, few birds are swifter of foot. It runs in a straight line before you, sometimes for twenty or thirty yards, with so much celerity, that unless you have a keen eye, it is almost sure to become lost to your view. Then, in an instant it stops, becomes

perfectly motionless, and if it perceives that you have not marked it, squats flat on the sand, which it so much resembles in colour, that you may as well search for another, as try to find it again.

Their notes, which are so soft and mellow as nearly to resemble those of the sweetest songster of the forest, reach your ear long before you have espied the Piping Plover. Now and then, these sounds come from perhaps twenty different directions, and you are perplexed, as well as delighted. At the approach of autumn, this species becomes almost mute, the colour of the plumage fades; and it is then very difficult for you to perceive one that may be only a few yards off, until it starts and runs or flies before you. At this season they are less shy than before.

During winter they are generally in good condition, and their flesh is very delicate and savoury, although, on account of their small size, they soldom draw the sportsman after them. Their food consists of marine insects, minute shell-fish, and small sand-worms.

RING PLOVER, *Charadrius Hiaticula*, Wils. Amer. Orn., vol. v. p. 30.
CHARADRIUS MELODUS, Ord, Bonap. Syn., p. 296.
PIPING RING PLOVER, Nutt. Man., vol. ii. p. 18:
PIPING PLOVER, *Charadrius melodus*, Aud. Orn. Biog., vol. iii. p. 154; vol. v. p. 578.

Male, 7½, 15½.

From Texas, along the whole coast, to the Magdeleine Islands, Gulf of St. Lawrence, breeding everywhere. Common. Great numbers spend the winter from South Carolina to the mouths of the Mississippi.

Male in summer.

Bill half the length of the head, straight, somewhat cylindrical. Upper mandible with the dorsal line straight to the middle, then bulging a little and curving to the tip, which projects beyond that of the lower mandible, the sides flat and sloping at the base, convex towards the end, the edges sharp and overlapping. Nasal groove extended to the middle of the bill, filled with a bare membrane; nostrils basal, linear, in the lower part of the membrane, open, and pervious. Lower mandible with the angle rather short, rounded, the sides at the base sloping outwards and flat, the dorsal line ascending and slightly convex, the edges sharp and inflected.

Head of moderate size, oblong, compressed, the forehead rounded. Eyes large. Neck short. Body rather slender, ovate. Wings long. Feet of moderate length, slender; tibia bare a little above the joint; tarsus rather compressed, covered all round with reticulated angular scales; toes slender; the hind toe wanting; third or middle toe longest, outer toe considerably longer than inner, all scutellate above and marginate, the outer connected

with the middle by a short membrane; claws small, compressed, obtuse, the rather blunt inner edge of the middle claw a little dilated.

Plumage soft and blended; the feathers rounded, those on the back somewhat distinct. Wings long and pointed; primary quills tapering, the first longest, the second a little shorter, the rest rapidly graduated; inner secondaries tapering and elongated, so as nearly to equal the longest primaries. Tail of moderate length, slightly rounded, of twelve rather narrow feathers, which taper a little towards their rounded extremities.

Bill orange in its basal half, the rest black. Iris reddish-brown; margins of eyelids orange. Feet brownish-yellow; claws dusky. Forehead, sides of the face, throat, and the whole under parts, pure white. Upper parts pale brownish-grey. A black band across the upper part of the forehead, another surrounds the lower part of the neck, broad on the sides, but narrow above and below, where it is formed merely by the tips of some of the feathers. Above this is a white band over the hind neck, also very narrow above. Primaries dusky, each with a large white patch on a portion of the outer, and on the greater part of the inner web; secondaries of a lighter brown, white on the inner webs, some of those nearest the body entirely white; the five innermost like the back; most of the quills are more or less tipped with white, the primary and secondary coverts more distinctly so. The tail-feathers may be described as white; the second has a brown spot on the inner web towards the end, the third a larger spot or band on both webs, and the colour enlarges on the rest, until the middle feathers are nearly all dusky-brown.

Length to end of tail 7¼ inches, to end of claws 7, to end of wings 6¾; extent of wings 15½; wing from flexure 4½; tail 2$\frac{7}{12}$; bill along the back ½, along the edge of lower mandible $\frac{7}{12}$; tarsus $\frac{9}{12}$; middle toe $\frac{7}{12}$, its claw $\frac{3}{12}$. Weight 3 oz.

Female in summer.

The female is considerably smaller, but resembles the male in colouring, only the dark bands on the forehead and neck are narrower, and of a dusky brown tint.

Length to end of tail 7 inches, extent of wings 14¼.

The young, previous to their first moult, have the bill black, the feet flesh-coloured, with dusky claws. The colours of the plumage are nearly the same as in the adult, but there is no dark band on the forehead, and that on the lower neck is merely indicated by a brownish-grey patch on each side. The neck is surrounded by a collar of downy white feathers, and the tips and margins of the feathers of the head and back are pale ochre.

In this species the upper mandible is more concave than in any of the preceding; but the structure of the mouth is similar. Its width is 4½

twelfths. The tongue is 5 twelfths long, deeply concave above, fleshy, the tip rounded, thin-edged, and horny. The œsophagus is 2½ inches long, 2 twelfths in width, its inner coat longitudinally plicate, as in all the other species. Proventriculus 3 twelfths in breadth, its belt of glandules 5 twelfths. The stomach rather small, elliptical, 7½ twelfths long, 6 twelfths in breadth; the lateral muscles large, the epithelium with 24 longitudinal rugæ. Intestine 12 inches long, narrow; the duodenum 1¼ twelfths in width, the rest uniform, the rectum only being a little enlarged. Cœca 1 inch 1 twelfth from the extremity, 1 inch 2 twelfths in length, and ¾ twelfth in breadth. Trachea 1 inch 10 twelfths long, 1¾ twelfths in breadth, contracting to 1 twelfth; its rings about 70, cartilaginous. Bronchial half rings about 15. Muscles as in the last species. Male.

Genus II.—APHRIZA, *Aud.* SURF-BIRD.

Bill a little shorter than the head, rather stout, compressed, tapering, straightish, being recurvate in a slight degree; upper mandible with the dorsal line straight, and a little declinate as far as the middle, then concave, and towards the end convex, the nasal grooves extending to near the end, the ridge rather broad and flattened, the tip compressed and bluntish; lower mandible with the angle rather long and narrow, the dorsal line ascending, and slightly convex, the sides grooved for half their length, convex toward the end, the tip narrowed, but blunt. Nostrils sub-basal, linear, near the margin. Head rather small, ovate, rounded in front; neck of ordinary length; body rather full. Feet of moderate length, rather stout; tibia bare at the lower part, and reticulated; tarsus roundish, with small angular scales all round, those on the fore part larger; toes four, with numerous scutella, the first very small, and placed higher, the anterior toes free to the base, distinctly margined on both edges, flat beneath, the inner considerably shorter than the outer. Claws rather small, curved, compressed, blunted. Plumage full, soft, rather dense, on the neck and lower parts blended. Wings very long, narrow and pointed; first primary longest, inner secondaries much elongated. Tail rather short, even, of twelve moderately broad feathers. Name from Ἀφρός, foam; and ζάω, to live.

TOWNSEND'S SURF-BIRD.

APHRIZA TOWNSENDI, *Aud.*

PLATE CCCXXII.—FEMALE.

The remarkable bird here represented, which in form and size bears a considerable resemblance to the Knot, was procured by Mr. TOWNSEND on the shores of Cape Disappointment, and proved to be a female. Nothing is known as to the habits or range of the species. In order to exhibit its characters to the best advantage, I have figured it flying in two different aspects. The following note accompanied the specimen sent to me by Mr. TOWNSEND :—"I shot this bird, the only one I have ever seen, on Cape Disappointment, at the entrance of the Columbia river. It was sitting on the edge of the steep rocks, and the heavy surf frequently dashed its spray over it as it foraged among the retreating waves. When it started, it flew with a quick, jerking motion of its wings, and alighted again at a short distance. It was a female. The stomach was remarkably strong and muscular, and contained fragments of a small black shell-fish which adheres to the rocks in this neighbourhood."

TOWNSEND'S SURF-BIRD, *Aphriza Townsendi*, Aud. Orn. Biog., vol. v. p. 249

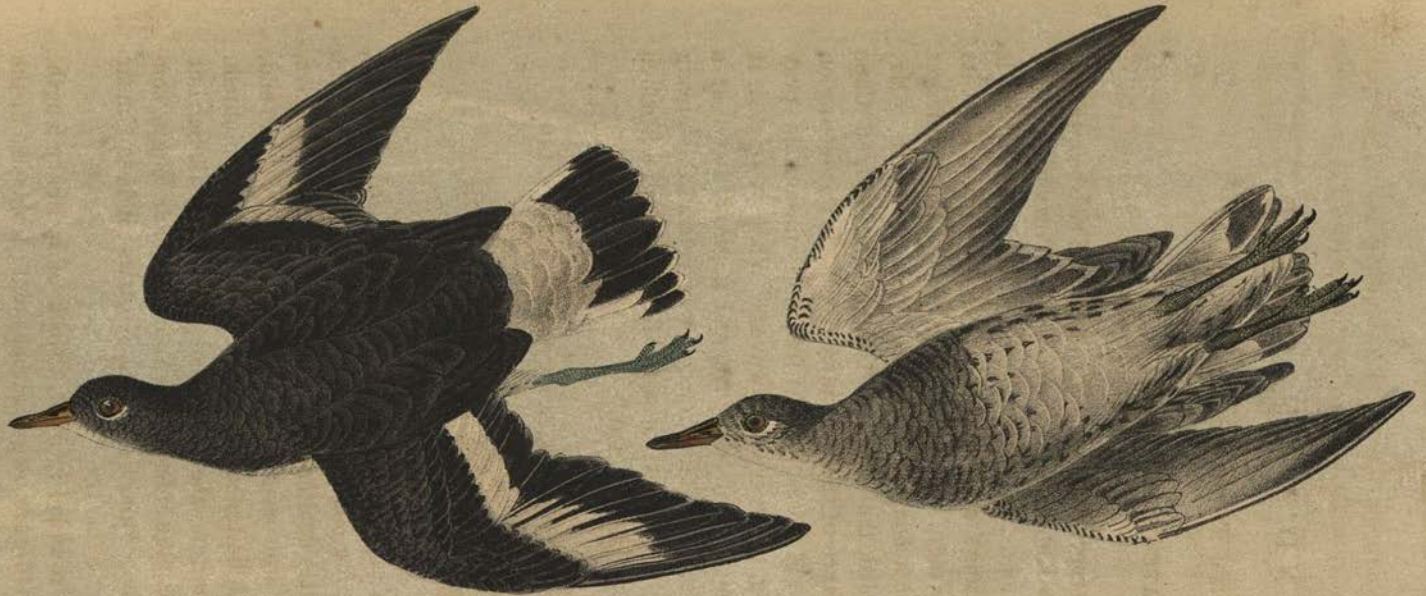
Female, 11 ; wing, 7½.

Cape Disappointment, Columbia river.

Female.

Bill a little shorter than the head, rather stout, compressed, tapering, straightish, being recurvate in a slight degree. Upper mandible with the dorsal line straight and a little declinate as far as the middle, then concave, and towards the end convex, the nasal groove extending to near the end, the ridge rather broad and flattened, the tip compressed and bluntish. Lower mandible with the angle rather long and narrow, the dorsal line ascending and slightly convex, the sides grooved for half their length, convex toward the end, the tip narrowed but blunt. Nostrils sub-basal, linear near the margin.

Head rather small, ovate, rounded in front. Neck of ordinary length. Body rather full. Feet of moderate length, rather stout ; tibia bare at the lower part, and reticulated ; tarsus roundish, with small angular scales all round, those on the fore part larger ; toes four, with numerous scutella, the



Townsend's Surf Bird

Drawn from Nature by J.J. Audubon F.R.S.F.L.S. *Females.* Lith.d Printed & Col.d by J.T. Bowen Phila.a

first very small and placed higher than the rest; the anterior toes free to the base, distinctly margined on both edges, flat beneath, the inner considerably shorter than the outer, the third a quarter of an inch longer than the latter; claws rather small, curved, compressed; blunted.

Plumage full, soft, rather dense, on the neck and lower parts blended. Wings very long, narrow and pointed; primaries with strong shafts, narrowed towards the end, the first longest, the rest rapidly decreasing; outer secondaries incurved, obliquely rounded, inner elongated, one of them reaching to an inch and two thirds of the tip of the longest primary when the wing is closed. Tail rather short, even, of twelve moderately broad, rounded feathers.

Bill dusky towards the end, orange at the base. Feet bluish-green, claws black. The general colour of the upper parts is a very dark or blackish-grey; the quills greyish-black; a broad band of white crosses the wing, occupying the tips of the primary coverts, the terminal third of the secondary coverts, the bases and more or less of the margins and tips of the quills, several of the inner secondaries having only a streak of dusky on the inner web, but the innermost or elongated quills are destitute of white. The shafts of the quills are also white, as are some of the feathers of the rump, the upper tail-coverts, the basal half of the tail, of which the rest is black, the feathers narrowly edged with white at the end; the black on the tail is narrower on the lateral feathers, and on the outer does not occupy much more than half an inch. The throat is greyish-white; the cheeks, sides, and fore part of the neck, and the anterior part of the breast dull grey, of a lighter tint than the back; the rest of the lower parts white, with small longitudinal oblong dark grey streaks; the axillaries and lower wing-coverts white, those at the edge of the wing dark grey, with white margins.

Length to end of tail 11 inches; bill from flexure $1\frac{11}{12}$, along the edge of lower mandible $1\frac{11}{12}$; wing from flexure $7\frac{1}{2}$; tail $3\frac{2}{12}$; tarsus $1\frac{2}{12}$; hind toe $\frac{9}{12}$, its claw $\frac{2}{12}$; middle toe $\frac{11}{12}$, its claw $\frac{3}{12}$.

The prominence on the terminal part of the upper mandible gives the bill somewhat of the appearance of that of a Plover, but in other respects it more resembles that of the Turnstone, the plumage agrees with that of the latter bird, and the colouring is very similar to its winter dress. This species in short seems intermediate between *Tringa* and *Strepsilas*, but is much more allied to the latter, with which it agrees in form and proportions, the principal differences being in the tail, which is not rounded, but even, in the want of scutella on the tarsi, and in the form of the bill at its extremity, the upper mandible in place of being a little recurvate and depressed, having its extremity arched and the point a little decurved. Were the latter worn off, it would agree with that of *Strepsilas*. Conceiving this bird to present cha-

racters sufficient to constitute a subgenus in immediate connection with *Strepsilas*, I propose to give it the name of *Aphriza Townsendi*, the generic appellation (derived from ἀφρος and ζαω) being expressive of the habits of the bird, as indicated in the notice of its discoverer, who appears to me to have the best claim for the specific name.

GENUS III.—STREPSILAS, *Illiger*. TURNSTONE.

Bill a little shorter than the head, rather stout, compressed, tapering, straightish, being recurvate in a slight degree; upper mandible with the dorsal line very slightly concave, the nasal groove extending to the middle, the sides beyond it sloping, the tip depressed and blunted; lower mandible with the angle short, the dorsal line ascending and slightly convex, the sides convex, the edges sharp, the tip depressed and blunted. Nostrils sub-basal, linear-oblong, pervious. Head rather small, ovate; neck of ordinary length; body rather full. Feet of moderate length, rather stout; tibia bare at the lower part, and covered with reticulated scales; tarsus roundish, with numerous broad anterior scutella; toes four, the first very small and elevated, anterior toes free to the base, distinctly margined, the inner a little shorter than the outer. Claws rather small, arched, compressed, blunted. Plumage full, soft, rather dense, and glossy. Wings long, pointed, of moderate breadth, first quill longest, inner secondaries elongated. Tail rather short, slightly rounded, of twelve moderately broad feathers.

Turnstone.

1. Summer Plumage 2. Winter

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen. Phila.ª

TURNSTONE.

STREPSILAS INTERPRES, *Linn.*

PLATE CCCXXIII.—ADULT IN SUMMER AND WINTER.

This bird, which, in its full vernal dress, is one of the most beautiful of its family, is found along the southern coast of the United States during winter, from North Carolina to the mouth of the Sabine river, in considerable numbers, although perhaps as many travel at that season into Texas and Mexico, where I observed it on its journey eastward, from the beginning of April to the end of May, 1837. I procured many specimens in the course of my rambles along the shores of the Florida Keys, and in the neighbourhood of St. Augustine, and have met with it in May and June, as well as in September and October, in almost every part of our maritime shores, from Maine to Maryland. On the coast of Labrador I looked for it in vain, although Dr. RICHARDSON mentions their arrival at their breeding quarters on the shores of Hudson's Bay and the Arctic Sea up to the seventy-fifth parallel.

In spring the Turnstone is rarely met with in flocks exceeding five or six individuals, but often associates with other species, such as the Knot, the Red-backed Sandpiper, and the *Tringa subarquata*. Towards the end of autumn, however, they collect into large flocks, and so continue during the winter. I have never seen it on the margins of rivers or lakes, but always on the shores of the sea, although it prefers those of the extensive inlets so numerous on our coasts. At times it rambles to considerable distances from the beach, for I have found it on rocky islands thirty miles from the mainland ; and on two occasions, whilst crossing the Atlantic, I saw several flocks near the Great Banks flying swiftly, and rather close to the water around the ships, after which they shot off toward the south-west, and in a few minutes were out of sight. It seems to be a hardy bird, for some of them remain in our Eastern Districts until severe frost prevails. Having seen some, in the beginning of June, and in superb plumage, on the high grounds of the Island of Grand Mannan, in the Bay of Fundy, I supposed that they bred there, although none of my party succeeded in discovering their nests. Indeed the young, as I have been informed, are obtained there, and along the coast of Maine, in the latter part of July.

I have found this bird much more shy when in company with other species than when in flocks by itself, when it appears to suspect no danger from man. Many instances of this seeming inattention have occurred to me, among others the following:—When I was on the island of Galveston, in Texas, my friend EDWARD HARRIS, my son, and some others of our party, had shot four deer, which the sailors had brought to our little camp near the shore. Feeling myself rather fatigued, I did not return to the bushes with the rest, who went in search of more venison for our numerous crew, but proposed, with the assistance of one of the sailors, to skin the deer. After each animal was stripped of its hide, and deprived of its head and feet, which were thrown away, the sailor and I took it to the water and washed it. To my surprise, I observed four Turnstones directly in our way to the water. They merely ran to a little distance out of our course, and on our returning, came back immediately to the same place; this they did four different times, and, after we were done, they remained busily engaged in searching for food. None of them were more than fifteen or twenty yards distant, and I was delighted to see the ingenuity with which they turned over the oyster-shells, clods of mud, and other small bodies left exposed by the retiring tide. Whenever the object was not too large, the bird bent its legs to half their length, placed its bill beneath it, and with a sudden quick jerk of the head pushed it off, when it quickly picked up the food which was thus exposed to view, and walked deliberately to the next shell to perform the same operation. In several instances, when the clusters of oyster-shells or clods of mud were too heavy to be removed in the ordinary way, they would use not only the bill and head, but also the breast, pushing the object with all their strength, and reminding me of the labour which I have undergone in turning over a large turtle. Among the sea-weeds that had been cast on the shore, they used only the bill, tossing the garbage from side to side, with a dexterity extremely pleasant to behold. In this manner, I saw these four Turnstones examine almost every part of the shore along a space of from thirty to forty yards; after which I drove them away, that our hunters might not kill them on their return.

On another occasion, when in company with Mr. HARRIS, on the same island I witnessed a similar proceeding, several Turnstones being engaged in searching for food in precisely the same manner. At other times, and especially when in the neighbourhood of St. Augustine, in East Florida, I used to amuse myself with watching these birds on the racoon-oyster banks, using my glass for the purpose. I observed that they would search for such oysters as had been killed by the heat of the sun, and pick out their flesh precisely in the manner of our Common Oyster-catcher, *Hæmatopus palliatus*, while they would strike at such small bivalves as had thin shells, and

break them, as I afterwards ascertained by walking to the spot. While on the Florida coast near Cape Sable, I shot one in the month of May, that had its stomach filled with those beautiful shells, which, on account of their resemblance to grains of rice, are commonly named rice-shells.

While this species remains in the United States, although its residence is protracted to many months, very few individuals are met with in as complete plumage as the one represented in my plate with the wings fully extended; for out of a vast number of specimens procured from the beginning of March to the end of May, or from August to May, I have scarcely found two to correspond precisely in their markings. For this reason, no doubt exists in my mind that this species, as well as the Knot and several others, loses its rich summer plumage soon after the breeding season, when the oldest become scarcely distinguishable from the young. In the spring months, however, I have observed that they gradually improve in beauty, and acquire full-coloured feathers in patches on the upper and lower surfaces of the body, in the same manner as the Knot, the Red-breasted Snipe, the Godwits, and several other species. According to Mr. HEWITSON, the eggs are four in number, rather suddenly pointed towards the smaller end, generally an inch and four and a half eighths in length, an inch and one and a half eighths in their greatest breadth, their ground-colour pale yellowish-green, marked with irregular patches and streaks of brownish-red, and a few lines of black.

My drawing of the Turnstones represented in the plate was made at Philadelphia, in the end of May 1824; and the beautiful specimen exhibited in the act of flying, I procured near Camden, while in the agreeable company of my talented friend LESUEUR, who, alas! is now no more.

I have not observed any remarkable difference in the plumage of the sexes at any season of the year. The males I have generally found to be somewhat larger than the females, which, as is well known, is not the case in the Tringa family.

My worthy friend, Dr. BACHMAN, once had a bird of this species alive. It had recovered from a slight wound in the wing, when he presented it to a lady, a friend of his and mine, who fed it on boiled rice, and bread soaked in milk, of both of which it was very fond. It continued in a state of captivity upwards of a year, but was at last killed by accident. It had become perfectly gentle, would eat from the hand of its kind mistress, frequently bathed in a basin placed near it for the purpose, and never attempted to escape, although left quite at liberty to do so.

TURNSTONE, *Tringa Interpres*, Wils. Amer. Orn., vol. vii. p. 32.

STREPSILAS INTERPRES, Bonap. Syn., p. 299.

STREPSILAS INTERPRES, *Turnstone*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 371.

Turnstone or Sea Dotterel, Nutt. Man., vol. ii. p. 30.
Turnstone, *Strepsilas Interpres*, Aud. Orn. Biog., vol. iv. p. 31.

Male, 9, 18¾.

Not uncommon along the shores of the Southern States during winter, though the greater number remove much farther south. Breeds in high northern latitudes, Hudson's Bay, and shores of Arctic Seas. Never in the interior.

Adult Male in summer.

Bill a little shorter than the head, rather stout, compressed, tapering, straightish, being recurvate in a slight degree. Upper mandible with the dorsal line very slightly concave, the nasal groove extending to the middle, the sides beyond it sloping, the tip depressed and blunted. Nostrils subbasal, linear-oblong, pervious. Lower mandible with the angle short, the dorsal line ascending and slightly convex, the sides convex, the edges sharp, the tip depressed and blunted.

Head small, ovate; eyes of moderate size. Neck of ordinary length. Body rather full. Feet of moderate length, stout; tibia bare at the lower part, and covered with reticulated scales; tarsus roundish, with numerous broad anterior scutella; toes four, the first very small, and placed higher than the rest; the anterior toes free to the base, distinctly margined on both edges, the inner toe a little shorter than the outer, the third or middle toe considerably longer; claws rather small, arcuate, compressed, blunted.

Plumage full, soft, rather dense, and glossy; feathers on the hind neck blended, and rather narrow, on the other parts ovate. Wings long, pointed, of moderate breadth; primaries with strong shafts, rather broad, narrowed towards the end, the first longest, the rest rapidly decreasing; the outer secondaries incurved, obliquely rounded; inner elongated, one of them extending to half an inch of the tip of the longest primary, when the wing is closed. Tail rather short, slightly rounded, of twelve moderately broad, rounded feathers.

Bill black. Iris hazel. Feet deep orange-red, claws black. Plumage variegated with white, black, brown, and red. Upper parts of the head and nape streaked with black and reddish-white; a broad band of white crosses the forehead, passes over the eyes, and down the sides of the neck, the hind part of which is reddish-white, faintly mottled with dusky; a frontal band of black curves downwards before the eye, enclosing a white patch on the lore, and meeting another black band glossed with blue, which proceeds down the neck, from the base of the lower mandible, enlarging behind the ear, covering the whole anterior part of the neck, and passing along the shoulder over the scapulars; the throat, hind part of the back, the outer

scapulars, upper tail-coverts, and the under parts of the body and wings, white. Anterior smaller wing-coverts dusky, the rest bright chestnut or brownish-orange, as are the outer webs of the inner tertiaries; alula, primary coverts, outer secondary coverts and quills blackish-brown, their inner webs becoming white towards the base; a broad band of white extends across the wing, including the bases of the primary quills, excepting the outer four, and the ends of the secondary coverts; the shafts of the primaries white. Tail white, with a broad blackish-brown bar towards the end, broader in the middle, the tips white. A dusky band crosses the rump.

Length to end of tail 9 inches, to end of wings $8\frac{3}{8}$, to end of claws 10; extent of wings $18\frac{3}{8}$; along the ridge $9_{\frac{1}{12}}$, along the edge of lower mandible $\frac{11}{12}$; wing from flexure $6\frac{1}{12}$; tail $2\frac{4}{12}$; tarsus $1\frac{1}{12}$; hind toe $\frac{9}{12}$, its claw $\frac{2}{12}$; middle toe $\frac{10}{12}$, its claw $\frac{3}{12}$. Average weight of three specimens $3\frac{3}{4}$ oz.

Male in winter.

In winter, the throat, lower parts, middle of the back, upper tail-coverts, and band across the wing, are white, as in summer; the tail and quills are also similarly coloured, but the inner secondaries are destitute of red, of which there are no traces on the upper parts, they being of a dark greyish-brown colour, the feathers tipped or margined with paler; the outer edges of the outer scapulars, and some of the smaller wing-coverts, white; on the sides and fore part of the neck the feathers blackish, with white shafts.

Individuals vary much according to age and sex, as well in size as in colour, scarcely two in summer plumage being found exactly similar.

In a male bird, the tongue is $\frac{6}{12}$ of an inch in length, sagittate and papillate at the base, concave above, narrow, and tapering to the point. The œsophagus is $4\frac{1}{4}$ inches long, inclines to the right, is rather narrow, and uniform, its diameter $\frac{4}{12}$. Proventriculus oblong, $\frac{8}{12}$ in length, $\frac{5}{12}$ in breadth, its glandules cylindrical. Stomach oblong, $1\frac{1}{2}$ in length, its cuticular lining very tough and hard, with broad longitudinal rugæ, its lateral muscles moderately large. Intestine $17\frac{1}{2}$ inches long, slender, varying in diameter from $\frac{2}{12}$ to $\frac{14}{12}$; rectum $1\frac{1}{2}$; cœca $1\frac{3}{12}$, $1\frac{1}{12}$ in diameter at the commencement, $\frac{2}{12}$ toward the end; cloaca globular.

The trachea is $3\frac{1}{4}$ inches long, $2\frac{1}{12}$ in breadth, contracts to $\frac{1}{12}$; its lateral muscles very thin; sterno-tracheal slender, a pair of tracheali-bronchial muscles. The rings are very thin and unossified, 104 in number. Bronchi of moderate length, with about 15 half rings.

In a female, the œsophagus is $4\frac{1}{4}$ inches long, the intestine 18. In both individuals the stomach contained fragments of shells, and claws of very small crabs, which were also found in the intestine, although there more comminuted.

Genus IV.—HÆMATOPUS. OYSTER-CATCHER.

Bill long, slender, straight, or slightly recurvate, higher than broad at the base, extremely compressed toward the end; upper mandible with the dorsal line straight and slightly sloping at the base, somewhat convex beyond the nostrils, then straight and sloping to the point, the ridge broad and flattened as far as the prominence, afterwards extremely narrow, the sides sloping at the base, perpendicular towards the end, the edges rather sharp, the tip abrupt and wedge shaped; nasal groove long, bare; lower mandible with the angle of moderate length, the dorsal line ascending and slightly convex, the sides erect, the edges thin, the tip abrupt and wedged. Nostrils sub-basal, linear, near the margin. Head of moderate size, ovate, the forehead rounded; neck of moderate length; body compact. Feet of moderate length, rather stout; tibia bare for about a fourth of its length; tarsus slightly compressed, covered all round with hexagonal scales; toes of moderate length, stout, marginate, flat beneath, webbed at the base; the outer considerably longer than the inner, the first wanting. Claws rather small, arched, moderately compressed, obtuse. Plumage generally blended, on the back compact. Wings long, pointed, the first quill longest. Tail short, nearly even, of twelve feathers. Tongue short, triangular, fleshy; œsophagus dilated into a pretty large crop; stomach oblong, muscular, with the epithelium dense and longitudinally rugous; intestine long and rather slender; cœca long and nearly cylindrical; cloaca globular.

THE AMERICAN OYSTER-CATCHER.

Hæmatopus palliatus, *Temm.*

PLATE CCCXXIV.—Male.

Our Oyster-catcher has a very extensive range. It spends the winter along the coast from Maryland to the Gulf of Mexico, and being then abundant on the shores of the Floridas, may be considered a constant resident in the United States. At the approach of spring, it removes toward the Middle

R. T

American Oyster Catcher

Male

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

States, where, as well as in North Carolina, it breeds. It seems scarcer between Long Island and Portland in Maine, where you again see it, and whence it occurs all the way to Labrador, in which country I found that several were breeding in the month of July. Unless in winter, when these birds assemble in parties of twenty-five or thirty individuals, they are seldom met with in greater numbers than from one to four pairs, with their families, which appear to remain with the parent birds until the following spring. It is never found inland, nor even far up our largest rivers, but is fond of remaining at all times on the sandy beaches and rocky shores of our salt-water bays or marshes. In Labrador, I met with it farther from the open sea than in any other part, yet always near salt-water.

Shy, vigilant, and ever on the alert, the Oyster-catcher walks with a certain appearance of dignity, greatly enhanced by its handsome plumage and remarkable bill. If you stop to watch it, that instant it sounds a loud shrill note of alarm; and should you advance farther towards it, when it has neither nest nor young, off it flies quite out of sight. Few birds, indeed, are more difficult to be approached, and the only means of studying its habits I found to be the use of an excellent telescope, with which I could trace its motions when at the distance of a quarter of a mile, and pursuing its avocations without apprehension of danger. In this manner I have seen it probe the sand to the full length of its bill, knock off limpets from the rocks on the coast of Labrador, using its weapon sideways and insinuating it between the rock and the shell like a chisel, seize the bodies of gaping oysters on what are called in the Southern States and the Floridas "Racoon oyster-beds," and at other times take up a "razor-handle" or solen, and lash it against the sands until the shell was broken and the contents swallowed. Now and then they seem to suck the sea-urchins, driving in the mouth, and introducing their bill by the aperture, without breaking the shell; again they are seen wading up to their bodies from one place to another, seizing on shrimps and other crustacea, and even swimming for a few yards, should this be necessary to enable them to remove from one bank to another without flying. Small crabs, fiddlers, and sea-worms are also caught by it, the shells of which, in a broken state, I have found in its gizzard in greater or less quantity. Frequently, while on wet sea-beaches, it pats the sand, to force out the insects; and in one instance I saw an individual run from the water to the dry sand, with a small flounder in its bill, which it afterwards devoured.

This bird forms no regular nest, but is contented with scratching the dry sand above high-water mark, so as to form a slight hollow, in which it deposits its eggs. On the coast of Labrador, and in the Bay of Fundy, it lays its eggs on the bare rock. When the eggs are on sand, it seldom sits

on them during the heat of the sun; but in Labrador, it was found sitting as closely as any other bird. Here, then, is another instance of the extraordinary difference of habit in the same bird under different circumstances. It struck me so much, that had I not procured a specimen in Labrador, and another in our Middle Districts, during the breeding season, and found them on the closest examination to be the same, I should perhaps have thought the birds different. Everywhere, however, I observed that this bird is fond of places covered with broken shells and drifted sea-weeds or grasses, as a place of security for its eggs, and where, in fact, it is no very easy matter to discover them. The eggs are two or three, measure two inches and one-eighth in length, by an inch and a half in breadth, and are of the form of those of a common hen. They are of a pale cream colour, spotted with irregular marks of brownish-black, and others of a paler tint, pretty equally dispersed all over. The birds, even when not sitting on them, are so very anxious about them, that on the least appearance of an enemy, they scream out loudly, and if you approach the nest, fly over and around you, although always at a considerable distance. When you meet with the young, which run as soon as they are hatched, the old birds manifest the greatest anxiety. They run before you, or fly around you, with great swiftness, and emit peculiar notes, which at once induce their little ones to squat among the sand and broken shells, where, on account of their dull greyish colour, it is very difficult to see them unless you pass within a foot or two of them. when they run off emitting a plaintive note, which renders the parents doubly angry. Their shape is now almost round, and the streaks of their back and rump, as well as the curved points of their bills, might induce you to believe them to be anything but the young of an Oyster-catcher. I have caught some, which I thought were more than a month old, and yet were unable to fly, although full feathered. They appeared weakened by their fatness, and were overtaken by running after them on the sands. There were no parent birds near or in sight of them; yet I much doubt if they procured their own food at this period, and have more reason to believe that, like some other species of birds, they were visited and supplied with food at particular hours of the day or of the night, as is the case with Herons and Ibises, for the Oyster-catcher is scarcely nocturnal.

By the beginning of October these birds return to the south. I saw them at Labrador until the 11th of August, but cannot say at what period they leave that country. When wounded while wading or on the shore, they make for the water, on which they float buoyantly and move with ease.

The flight of the American Oyster-catcher is powerful, swift, elegant at times, and greatly protracted. While they are on wing, their beauties are

as effectually displayed as those of the Ivory-billed Woodpecker of our woods, the colours of which are somewhat similar. The transparent white of their wings contrasts with their jetty tips, and is enriched by the coral hue of the bill, while the beautiful white of their lower parts has a very pleasing effect. Their loud cries, too, of *wheep, wheep, wheeop*, which sound in your ears, are quite different from any you have heard; and as they perform their various evolutions, all charming in themselves, you cannot, if unacquainted with the bird, refrain from asking what it is? Now wheeling with wonderful impetuosity, they pass within a hundred yards of you, and suddenly checking their flight return, not low over the waters as before, but high in the air. Again, they form their ranks in a broad front, and again, as if suddenly alarmed by the report of a distant gun, they close pell-mell, and dip towards the sands or the waters. Shoot one at such a moment, and you may expect to kill another; but as this is done, the wary birds, as if suddenly become aware of your intentions, form themselves into a straggling line, and before a minute has elapsed, far beyond reach, and fading on the view, are the remaining Oyster-catchers.

The gullet of this species is capable of being considerably distended. When your finger is introduced into it, it passes with ease into a sort of crop, where the food is apparently prepared before entering the gizzard, which is rather muscular. How this bird disposes of the hard particles of shells, pebbles, and other matters, with which its food is mixed, is beyond my comprehension, and one which I gladly leave for your solution. Their flesh is dark, tough, and unfit for eating, unless in cases of extreme necessity.

The females and young are dark olive-brown above, like the males, but of a browner shade. I have represented a male bird. I have never met with the European Oyster-catcher, *Hæmatopus Ostralegus*, in any part of the United States, and, although I cannot of course aver that it does not occur here, I believe that the American or Mantled Oyster-catcher has been confounded with it by WILSON and others. Indeed, the figure given by WILSON resembles that of the European bird, but his description of the female and young almost agrees with the present species, the dimensions also being nearly the same.

At Derniere Island, on the 15th of April, 1837, we met with a flock of Oyster-catchers, fourteen or fifteen in number, flying compactly, and uttering their usual cry of *weep, weep*. Two were shot down into the water, but one of them that had only been winged, dived so effectually as to escape from us, in spite of the most strenuous exertions of the sailors. At Galveston Island on the 26th of April, they were quite away from the water, and running among the grass, so that they probably had either eggs or young.

An individual obtained at Derniere Island, weighed 1 lb. 12 oz.; its alar extent 37 inches; length to end of tail 19¾, to end of claws 19.

HÆMATOPUS PALLIATUS, Temm. Man. d'Orn., vol. ii. p. 532.
MANTLED OYSTER-CATCHER, *Hæmatopus palliatus*, Nutt. Man., vol. ii. p. 15.
AMERICAN OYSTER-CATCHER, *Hæmatopus palliatus*, Aud. Orn. Biog., vol. iii. p. 181 vol. v. p. 580.

Male 18½, 32½, bill 3⅝. Female, 21, 36.

Breeds from Texas along the coast to New York, again from Maine to Labrador. Returns south in autumn, spending the winter from Maryland to West Florida. Rather common.

Male in June.

Bill long, slender but strong, straight, deeper than broad at the base, towards the end extremely compressed, terminating in a very thin wedge-shaped point. Upper mandible with the dorsal line at the base straight and slightly sloping, convex beyond the nostrils, then straight and sloping to the point, the ridge broad and flattened as far as the prominence, afterwards extremely narrow, the sides sloping at the base, perpendicular towards the end, the edges rather sharp. Nasal groove basal, long; nostrils basal, in the middle of the groove, linear, direct, placed nearer the margin than the dorsal line, pervious. Lower mandible straight, the dorsal line at the base sloping upwards, at one-third of the length of the bill bulging, then straightish and slightly ascending, the tip narrower than that of the upper mandible, the sides at the base sloping upwards, and having a shallow groove, towards the end becoming perpendicular. The bill differs from that of the *Hæmatopus Ostralegus* in being much deeper at the bulging part, much more attenuated towards the point, and proportionally longer.

Head of moderate size, oblong, the forehead rounded. Neck rather long. Body stout, compact, deeper than broad. Wings long. Feet of moderate length, rather stout; tibia bare for a fourth of its length, and, like the slightly compressed tarsus, covered all round with hexagonal scales; toes rather short and fleshy, the hind toe wanting, the second a little shorter than the fourth, the third much longer, all scaly at the base above, scutellate towards the end, flattened and broad beneath, with thick margins, which are covered with prominent thick scales, and connected at the base by short webs, of which the outer is longer; claws small, blunt, rather compressed, that of the middle toe largest, and with a dilated thin inner edge.

Plumage of the head and neck short, blended, of the back compact, and slightly glossed, of the lower parts close and rather blended, the feathers in general incurved, broad, and rounded. Wings long, acute; primaries rather narrow and tapering, the first longest, the second slightly shorter, the rest

rapidly graduated; secondaries broad and rounded, the inner much elongated and tapering. Tail short, rounded, of twelve rather broad, rounded feathers.

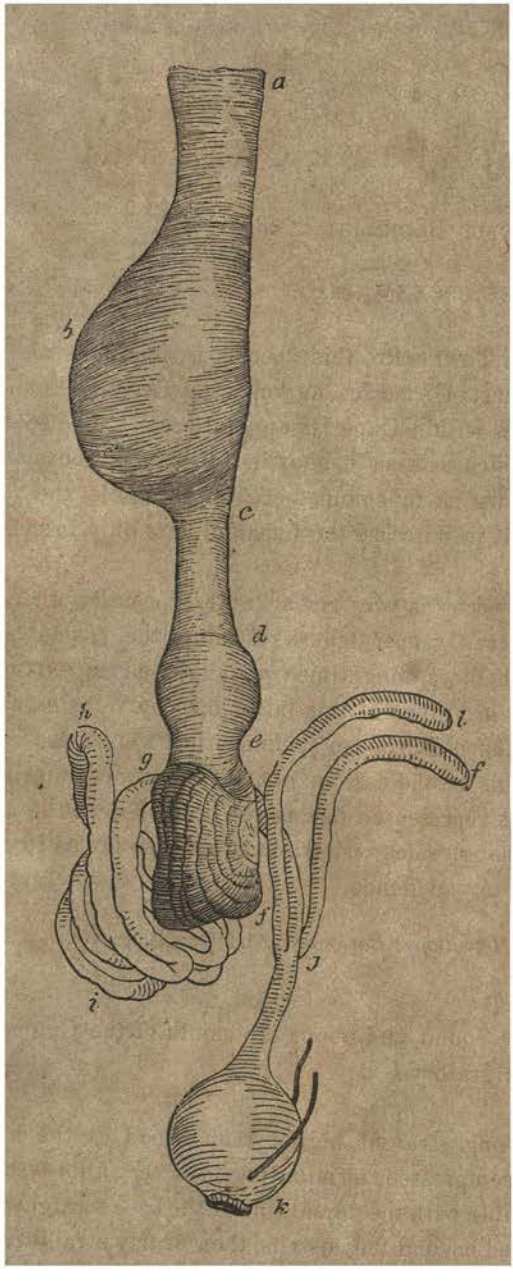
Bill vermilion, lighter at the base. Edges of eyelids vermilion; iris bright yellow. Feet very pale flesh-colour; claws brownish-black. Head and neck dull black, tinged with bluish-grey; lower eyelid white; the bases of the feathers on the chin white. The general colour of the upper parts is light greyish-brown, tinged with olive, and in certain lights with faint reddish-purple reflections; the edge of the wing, the tips of the secondary coverts, the secondary quills, excepting the inner elongated ones, pure white; as are the breast, sides, under wing-coverts, abdomen, sides of the rump, the upper and the lower tail-coverts. Basal half of the tail white, the rest greyish-brown, like the back.

Length to end of tail 17½, to end of claws 19½; wing from flexure 10½, tail 4¼; extent of wings 36; bill along the back 3⅝; along the edge 3⅞; bill at the base $\frac{9}{12}$, at the deepest part in the middle $\frac{8}{12}$; naked part of tibia 1; tarsus 2¼; middle toe $1\frac{6}{12}$, its claw $\frac{3}{12}$. Weight 1 lb. 4½ oz.

The bill varies considerably in length and depth. Individuals vary in length from 17 to 18 inches.

The female is precisely similar to the male.

One of many specimens preserved in spirits, a female, presents the following particulars. The roof of the mouth is flat, with a median groove towards the end; the palate with two longitudinal ridges covered with reversed papillæ; the posterior aperture of the nares linear, margined with papillæ. The tongue is short, 9½ twelfths long, triangular, tapering to a blunt point, emarginate and papillate at the base, flat above, thin and fleshy. The œsophagus, *a b c d e*, is 8½ inches long, at the upper part 9 twelfths in width, but at the lower part of the neck dilated into an elongated sac or crop, 1 inch 10 twelfths wide; on entering the thorax it contracts to 9 twelfths. The proventriculus, *d e*, is 1½ inches in breadth. The stomach, *f g*, is oblong, 1¾ inches long, 1 inch 2 twelfths in breadth; its muscular coat thick, and disposed into two lateral muscles of moderate strength; the epithelium tough, dark red, with numerous longitudinal rugæ. The proventricular glands are cylindrical, 2 twelfths long, forming a continuous belt 1¼ inches in breadth. The contents of the stomach are testaceous mollusca, with a few fragments of shells and opercula. The lobes of the liver are very unequal, the right 3¼ inches long, the left 2¼. The intestine, *g h j k*, 58 inches long. It forms the duodenal curve in the usual manner, then runs backward nearly to the extremity, forms several folds or convolutions, then curves up over the stomach, and passes directly to the anus. Its average width is 4 twelfths. The cœca, *l l*, are 4¼ inches in length, their greatest width 3 twelfths, their



distance from the anus 3 inches; the cloaca, *k*, globular. This bird was nearly ready to lay eggs. One of them has a diameter of one inch, which is the full size of the yolk, the albumen not being added until it has entered the oviduct.

The trachea, which is 5½ inches long, gradually tapers from the width of 4½ twelfths to that of 2⅝ twelfths. Its rings are unossified, 115 in number. The bronchi are of moderate length, wide, of about 20 very thin cartilaginous half rings. The lateral muscles are strong; the sterno-tracheal slips come off close to the inferior larynx, which has no peculiar muscles.

In a male, the œsophagus is 8 inches long, its greatest width near the lower part of the neck 1½ inches. The stomach is small, being 1½ inches long, and 1 inch in breadth. The intestine measures 4 feet 4 inches in length; its average width 4 twelfths. The cœca 4 inches long.

Bachman's Oyster-catcher

Male

Drawn from Nature by J.J.Audubon FRSFLS.

Lith.d Printed & Col.d by J. T. Bowen. Phila.a

BACHMAN'S OYSTER-CATCHER.

HÆMATOPUS BACHMANI, *Aud.*

PLATE CCCXXV.—MALE.

According to my friend Mr. TOWNSEND, this species is abundant along the whole of the north-west coast of America, as well as in Regent's Sound, but is rarely seen on the shores within Cape Disappointment. The specimen sent to me by him is ticketed as a male, shot in June, 1836; but as in this genus there is no difference as to colour between the male and the female, it may be supposed that in this case the female differs only in being somewhat smaller.

The discovery of two new species is very remarkable, especially when it is seen that not one of our three Oyster-catchers resembles the *Hæmatopus Ostralegus* of Europe, which for a long time was supposed to exist in America, on account of the figure given of this latter bird by WILSON, who must have taken it from a stuffed European specimen in PEALE'S Museum in Philadelphia. Whether this be the case or not, it is pretty certain that no such bird as WILSON has represented has as yet been observed in any part of North America, although some writers have gone so far as to say so, without however offering any evidence.

BACHMAN'S OYSTER-CATCHER, *Hæmatopus Bachmani*, Aud. Orn. Biog., vol. v. p. 245

Male 17½, wing 10; bill 2¾.

North-west coast, Regent's Sound, and about the mouth of the Columbia river. Rather common. Migratory.

Male.

Bill long, slender but strong, straight, higher than broad at the base towards the end extremely compressed, terminating in a very thin wedge-shaped point. Upper mandible with the dorsal line at the base straight and slightly sloping, a little arched beyond the nostrils, then nearly straight and sloping to the point, the ridge broad and flattened as far as the prominence, afterwards very narrow, the sides sloping at the base, perpendicular towards the end, the edges sharp and direct. Nasal groove basal, long; nostrils sub-basal, in the middle of the groove near the margin, linear, direct, pervious.

Lower mandible with the angle rather short and narrow, the dorsal line straight and slightly ascending, the ridge narrow, the sides a little convex and erect, with a shallow groove at the base, the edges sharp and direct.

Head of moderate size, ovate, the forehead convex. Neck rather long. Feet of moderate length, rather stout; tibia bare for half an inch; tarsus rather short, slightly compressed, covered all round with hexagonal scales; toes rather short and fleshy, the hind toe wanting, the second shorter than the fourth, the third considerably longer, all scaly at the base above, scutellate towards the end, flattened and broad beneath, with thick margins and connected at the base by short webs, of which the outer is longer. Claws small, compressed at the base, depressed and rounded at the end, that of the middle toe largest, with a somewhat dilated thin inner edge.

Plumage of the head and neck short and blended, of the back rather compact and slightly glossed, of the lower parts blended, the feathers in general ovate and rounded. Wings long, acute; primaries tapering toward the end, but obtuse, the first longest, the second one-twelfth of an inch shorter, the third two-twelfths shorter than the second, the rest more rapidly graduated; secondaries broad and rounded, the inner much elongated and tapering. Tail short, nearly even, of twelve rather broad, rounded feathers, of which the lateral are two-twelfths shorter than the middle (but as they are all worn the proportions cannot be determined).

Bill vermilion, fading to yellow on the worn parts toward the end. Edges of eyelids vermilion; iris yellow. Feet white, slightly tinged with flesh-colour; claws yellowish, toward the end dusky. The plumage is chocolate-brown, darker, and tinged with bluish-grey on the head and neck; the under surface of the quills light brownish-grey, their shafts whitish.

Length to end of tail 17½ inches; bill along the ridge $2\frac{3}{12}$, along the edge of lower mandible $2\frac{10\frac{1}{2}}{12}$, its greatest height beyond the nostrils $\frac{6\frac{1}{2}}{12}$; wing from flexure 10; tail $3\frac{1\frac{1}{2}}{12}$; tarsus $1\frac{10\frac{1}{2}}{12}$; inner toe 1, its claw $\frac{3}{12}$; middle toe $1\frac{4\frac{1}{2}}{12}$; its claw $\frac{4\frac{1}{2}}{12}$; outer toe $1\frac{3}{12}$, its claw $\frac{2\frac{1}{2}}{12}$.

Townsend's Oyster-catcher.

Female.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

TOWNSEND'S OYSTER-CATCHER.

HÆMATOPUS TOWNSENDI, *Aud.*

PLATE CCCXXVI.—FEMALE.

A specimen of this species, which very closely resembles the last, but is much larger, and differs in its proportions, was also forwarded to me by Mr. TOWNSEND, but without any notice respecting its habits or distribution. I have compared it with some specimens brought from the coast of California, with which it agrees in all respects. It is not improbable, however, that, like our *Hæmatopus palliatus*, which in summer extends from the shores of South America to those of Labrador, the present species, as well as *H. Bachmani*, courses the shores of the Pacific Ocean to a very high latitude. I have taken the liberty of naming it after its discoverer.

TOWNSEND'S OYSTER-CATCHER, *Hæmatopus Townsendi*, Aud. Orn. Biog, vol. v. p. 247.

Female, 20; wing 11; bill $3\frac{2}{1\frac{2}{2}}$.

Coast of California, and along the shores of the North Pacific, southward and northward. Rather common. Migratory.

Male.

Bill long, slender but strong, slightly recurved, or ascending, beyond the nostrils, about the same height and breadth at the base, toward the end extremely compressed, terminating in an exceedingly thin wedge-shaped point. Upper mandible with the dorsal line at the base straight and slightly sloping, a little arched beyond the nostrils, then nearly straight and sloping to the point, the ridge broad and flattened as far as the prominence, afterwards extremely narrow, the sides sloping at the base, perpendicular towards the end, the edges sharp, direct, and about the middle slightly overlapping. Nasal groove basal, long; nostrils sub-basal, in the middle of the groove near the margin, linear, direct, pervious. Lower mandible with the angle rather short and narrow, the dorsal line ascending and slightly convex, the ridge very narrow, the sides erect and nearly flat, with a shallow groove at the base, the edges sharp and direct.

Head of moderate size, ovate, the forehead convex. Neck rather long. Feet of moderate length, rather stout, tibia bare for three-quarters of an inch; tarsus of moderate length, somewhat compressed, covered all round with

hexagonal scales; toes rather short and fleshy, the hind toe wanting, the second shorter than the fourth, the third considerably longer, all scaly at the base above, scutellate towards the end, flattened and broad beneath, with thick margins, and connected at the base by short webs, of which the outer is longer. Claws rather small, compressed, blunt, that of the middle toe largest, with a somewhat dilated thin inner edge.

Plumage of the head and neck short and blended, of the back rather compact, and slightly glossed, the lower parts blended, the feathers in general ovate and rounded. Wings long, acute; primaries tapering toward the end, but obtuse, the first longest, the second two-twelfths shorter, and exceeding the third by three-twelfths; secondaries broad and rounded, the inner much elongated and tapering. Tail short, nearly even, of twelve rather broad, rounded feathers, of which the lateral are scarcely shorter than the middle.

Bill vermilion, paler toward the end. Edges of eyelids vermilion; iris yellow. Feet blood-red, claws dusky. The plumage is chocolate-brown, darker and tinged with bluish-grey on the head, neck, and breast; the under surface of the quills light brownish-grey, their shafts whitish. Many of the upper wing-coverts are narrowly tipped with brownish-white.

Length to end of tail 20 inches; bill along the ridge $3\frac{2}{12}$; along the edge of lower mandible $3\frac{4}{12}$, its greatest height beyond the nostrils $\frac{7}{12}$; wing from flexure 11; tail $4\frac{1}{12}$; tarsus $2\frac{5}{12}$; inner toe $\frac{9}{12}$, its claw $\frac{3}{12}$; middle toe $1\frac{10}{12}$, its claw $\frac{5}{12}$; outer toe $1\frac{7}{12}$, its claw $\frac{4}{12}$.

This species is larger than the preceding, but its plumage is similar in texture and colouring. Besides its much greater size, it differs in the form of the bill, which is much longer, much deeper, more compressed, and distinctly ascending or slightly recurvate, the lower mandible especially, which in the other is quite straight. The former species also has the feet white, and the claws pale, whereas in this they seem to have been red, with the claws dusky.

FAMILY XXXVI.—SCOLOPACINÆ. SNIPES.

Bill longer than the head, subulate, slender, straight, or recurved, or decurved; upper mandible with the nasal groove very long, the edges flattened or rounded, the tip generally rather obtuse; lower mandible with the angle extremely long and narrow, the sides longitudinally grooved. Nostrils basal, linear, small. Head rather small, oblong, anteriorly rounded; neck of moderate length or long; body ovate, deep. Legs generally long, slender; tarsus long, compressed, scutellate; toes generally four, first small, sometimes wanting; anterior toes of moderate length, slender. Claws small, arched, compressed, rather acute. Wings long, pointed, with the first quill longest, and the inner secondaries tapering and much elongated; tail rather short, of twelve feathers. Tongue long, slender, trigonal, pointed; œsophagus of moderate width, stomach oblong or roundish, moderately muscular, with dense rugous epithelium; intestine long, of moderate width; cœca rather long, cylindrical, contracted at the base. Trachea flattened, with a single pair of inferior laryngeal muscles.

Genus I.—TRINGA, *Linn.* SANDPIPER.

Bill little longer than the head, slender, straight, compressed, tapering, with the tip a little enlarged and blunt; upper mandible with the dorsal line straight and slightly declinate, the ridge narrow and flattened until towards the end, when it becomes considerably broader, the sides sloping, the tip convex above and ending in a blunt point, the edges thick and flattened; nasal groove extending to near the tip; lower mandible with the angle long and very narrow, the dorsal line straight, the sides sloping outwards, with a long narrow groove, the tip a little broader, but tapering. Head rather small, oblong, compressed; neck of ordinary length; body rather full. Feet rather long, slender; tibia bare a third part of its length; tarsus anteriorly and posteriorly scutellate; hind toe very small, or wanting, the rest of moderate length, slender, the fourth slightly longer than the second, the

third longest, all free, broadly marginate, with numerous scutella. Claws small, slightly arched, compressed, rather obtuse. Plumage soft, blended, on the back distinct. Wings very long, pointed; primaries tapering, obtuse, the first longest; one of the inner secondaries very long. Tail rather short, nearly even, of twelve feathers.

BARTRAMIAN SANDPIPER.

TRINGA BARTRAMIA, *Wils.*

PLATE CCCXXVII.—MALE AND FEMALE.

The Bartramian Sandpiper is the most truly terrestrial of its tribe with which I am acquainted. It is even more inclined, at all seasons, to keep away from the water than the Kildeer Plover, which may often be seen wading in shallow pools, or searching along the sandy or muddy margins of the shores of the sea, or of fresh-water lakes and streams. Although not unfrequently met with in the vicinity of such places, it never ventures to wade into them; and yet the form and length of its legs and feet would naturally induce a person not acquainted with its habits to consider it as a wading bird.

The dry upland plains of those sections of Louisiana called Opellousas and Attacapas, are amply peopled with this species in early spring, as well as in autumn. They arrive there from the vast prairies of Texas and Mexico, where they spend the winter, in the beginning of March, or about the period of the first appearance of the Martins, *Hirundo purpurea*, and return about the first of August. They are equally abundant on all the western prairies on either side of the Missouri, where, however, they arrive about a month later than in Louisiana, whence they disperse over the United States, reaching the middle districts early in May, and the State of Maine by the middle of that month, or about the same period at which they are seen in Indiana, Kentucky, and Ohio. Some proceed as far north as the plains adjoining the Saskatchewan river, where Dr. RICHARDSON met with this species in the month of May.

It has been supposed that the Bartramian Sandpiper never forms large

Bartramian Sandpiper.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. 1. Male 2. Female. Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

flocks, but this is not correct, for in the neighborhood of New Orleans, where it is called the "Papabote," it usually arrives in great bands in spring, and is met with on the open plains and large grassy savannahs, where it generally remains about two weeks, though sometimes individuals may be seen as late as the 15th of May. I have observed the same circumstance on our western prairies, but have thought that they were afterwards obliged to separate into small flocks or even into pairs, as soon as they are ready to seek proper places for breeding in, for I seldom found more than two pairs with nests or young in the same field or piece of ground. On their first arrival, they are generally thin, but on their return southward, in the beginning of August, when they tarry in Louisiana until the first of October, they are fat and juicy. I have observed, that in spring, when they are poor, they are usually much less shy than in autumn, when they are exceedingly wary and difficult of approach; but this general observation is not without exceptions, and the difference, I think, depends on the nature of the localities in which they happen to be found at either period. When on newly ploughed fields, which they are fond of frequenting, they see a person at a greater distance than when they are searching for food among the slender grasses of the plains. I have also thought that the size of the flocks may depend upon similar contingencies, for this bird is by no means fond of the society of man.

Like the Spotted Sandpiper, *Totanus macularius*, they not unfrequently alight on fences, trees, and out-houses; but whether in such situations or on the ground, they seldom settle without raising both wings upright to their full extent, and uttering their loud and prolonged, but pleasing notes. They run with great activity, stop suddenly, and vibrate their body once or twice. When earnestly followed by the sportsman, they lower their heads in the manner of Wilson's Plover, and the species called the Piping, and run off rapidly, or squat, according to the urgency of the occasion. At other times they partially extend their wings, run a few steps as if about to fly, and then cunningly move off sideways, and conceal themselves among the grass, or behind a clod. You are not unfrequently rendered aware of your being within sight of them, by unexpectedly hearing their plaintive and mellow notes, a circumstance, however, which I always concluded to be indicative of the wariness of their disposition, for although you have just heard those well-known cries, yet, on searching for the bird, you nowhere see it, for the cunning creature has slipped away and hid itself. When wounded in the wing, they run to a great distance, and are rarely found.

Like all experienced travellers, they appear to accommodate themselves to circumstances as regards their food, for in Louisiana they feed on cantharides and other coleopterous insects; in Massachusetts on grasshoppers,

on which my friend NUTTALL says, they soon grow very fat; in the Carolinas on crickets and other insects, as well as on the seeds of the crab-grass, *Digitaria sanguinaria;* and in the barrens of Kentucky they often pick the strawberries. Those which feed much on cantharides, require to be very carefully cleaned, otherwise persons eating them are liable to suffer severely. Several gentlemen of New Orleans have assured me, that they have seen persons at dinner obliged to leave the room at once, under such circumstances as cannot well be described here. When flavoured with the ripe strawberries, on which they have fed, their flesh is truly delicious.

This species performs its migrations by night as well as by day. Its flight is rather swift and well sustained. While travelling, it generally flies so high as to be beyond reach of the gun: but if the weather be cloudy, or if it blow hard, it flies lower, and may easily be shot. It generally proceeds in straggling bands, and moves along with continuous easy beats of the wings, but sails, as it were, when about to alight, as well as during the love-season.

As long ago as 1805 and 1806, I observed this species breeding in the meadows and green-fields of my plantation of Millgrove, near the banks of Perkioming creek. Since then, I have known of its rearing broods in different parts of Pennsylvania, in the State of New York, and in various districts to the eastward as far as the confines of Maine; but I did not find it in Newfoundland or Labrador; and I have reason to believe that it does not breed to the south of Maryland.

My friend, the Rev. Dr. BACHMAN, has informed me that the Bartramian Sandpiper makes its appearance in South Carolina about the 15th of July, the hottest period of the year, in considerable numbers, betakes itself at once to the high grassy lands, and there remains about a month. He considers it to be then on its return from the north, and states that it is very fat and affords delicious food. His manner of shooting them is, to ride in a chair or gig over the fields which they frequent, or along the roads in their neighbourhood, by which means they can be approached near enough to enable the sportsman to shoot with almost a certainty of success, as the bird rises out of the grass. If one attempts to get near them on foot, they rise at too great a distance, then sweep in circles over the spot, and alight a considerable way off. They are seldom met with there in flocks of more than four or five individuals.

I have found the eggs of this bird laid on the bare earth, in a hollow scooped out to the depth of about an inch and a half, near the roots of a tuft of rank grass, in the middle of a meadow, and seen some nests of the same species formed of loosely arranged grasses, and placed almost beneath low bushes growing on poor elevated ridges, furnished with a scanty vegetation.

I have also heard my esteemed young friend, Dr. JAMES TRUDEAU, state that he had discovered one on a high part of the bank of the Delaware river. When disturbed while on its nest, but unobserved, it runs thirty or forty yards, and then flies off as if severely wounded. Should it have young, its attempts to decoy you away are quite enough to induce you to desist from harassing it. The eggs measure an inch and five and a half eighths, by an inch and a quarter in their greatest breadth. In form they resemble those of *Totanus macularius*, being broadly rounded at one end, and rather pointed at the other ; their surface smooth ; their ground colour dull greyish-yellow, with numerous spots of light purple and reddish-brown. They are placed in the nest in the same manner as those of the Spotted Sandpiper, that is, with the smaller ends together, which is also the case with those of the Tell-tale Godwit, Wilson's Plover, and the Kildeer Plover. The young, which run about immediately after exclusion, grow rapidly, and in about a month are able to use their wings, after which, they and their parents gradually, and according to the temperature of the season, move southward.

In Massachusetts, and to the eastward of that state, this species is best known by the name of "Upland Plover," and in some other districts it is named the Field Plover. The drawing from which the plate was engraved was taken from individuals shot near Bayou Sara, in the State of Mississippi.

BARTRAM SANDPIPER, *Tringa Bartramia*, Wils. Amer. Orn., vol. vii. p. 63.
TOTANUS BARTRAMIUS, Bonap. Syn., p. 262.
TOTANUS BARTRAMIUS, *Bartram Tatler*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 391.
BARTRAMIAN TATLER, Nutt. Man., vol. ii. p. 169.
BARTRAMIAN SANDPIPER, *Totanus Bartramius*, Aud. Orn. Biog., vol. iv. p. 24.

Male, 12½, 22. Female, 13, 22¾.

From Texas along the coast to Nova Scotia. Breeds from Maryland northward to the Saskatchewan. In vast flocks in Louisiana, Opelousas, and the Western Prairies, in autumn and spring. Rare in Kentucky.

Adult Male.

Bill a little longer than the head, slender, straight, slightly deflected at the end. Upper mandible with the dorsal line straight, the ridge convex, the sides grooved beyond the middle, afterwards convex, the edges inflected, the tips a little deflected, and tapering to an obtuse point. Nostrils sub-basal, lateral, linear, pervious, nearer the edge than the dorsal line. Lower mandible with the angle very narrow and elongated, beyond it the outline slightly convex, the sides sloping outwards and concave until the middle, afterwards flattened, the edges sharp, the point very narrow.

Head rather small, convex above, compressed. Neck of moderate length, slender. Body rather slender. Feet long and slender ; tibia bare for about

half its length, scutellate before and behind; tarsus long, slender, having before and behind numerous scutella, the narrow lateral spaces with very small oblong scales. Toes slender, the first very short, the second much shorter than the fourth, the third and fourth connected at the base by a web; the scutella numerous; claws small, compressed, slightly arched, rather blunt.

Plumage soft, on the neck and lower parts blended; on the upper rather distinct. Wings rather long, acute, narrow; primaries tapering and rounded, the first longest, the second a little shorter, the rest rapidly graduated; secondaries obliquely rounded, the inner elongated and tapering. Tail of moderate length, much rounded, of twelve rather narrow feathers.

Bill yellowish-green, the tip dusky, the edges towards the base yellow. Iris dark hazel. Legs and tarsi light yellowish-grey, toes rather darker, claws brownish-black. Upper part of the head dark brown, with a median pale yellowish-brown line, the margins of the feathers also of that colour, which prevails along the sides of the head and the back of the neck, which are streaked with dusky; the eye surrounded with yellowish-white. Throat yellowish-white, without spots; fore part and sides of the neck, with a portion of the breast and sides of the body, cream-coloured, with dusky lines, which gradually become arrow-shaped on the breast, forming a double transverse band; the feathers on the sides barred; the rest of the lower parts yellowish-white, the lower tail-coverts rich cream-coloured. Axillar feathers and lower wing-coverts white, banded with brownish-black. On the upper parts the feathers are dark brown, glossed with green, with rich cream-coloured margins; the rump darker. On the margins of the scapulars, within the pale edge, is a series of dusky spots, which towards the end become continuous. Alula, primary coverts, and primary quills blackish-brown, the inner webs crossed by white bands until about an inch from the end, the shaft of the first quill white, those of the rest dusky. Secondaries greyish-brown, their outer margins pale brown, with dusky spots; the inner darker. The two middle feathers of the tail are dark olive, tinged with grey, transversely barred with black, the last bar arrow-shaped, the margins light cream-colour; the next feather on each side lighter, and tinged with yellowish-red; the rest gradually lighter, the outer white, all barred with black.

Length to end of tail 12½ inches, to end of wings 11⅛, to end of claws 13½; extent of wings 22; wing from flexure 7; tail 3¾; bare part of tibia $\frac{9}{10}$; tarsus $1\frac{1}{12}$, first toe $\frac{4}{12}$, its claw $1\frac{1}{12}$; middle toe 1, its claw $\frac{2}{12}$; bill along the ridge $1\frac{3}{12}$; along the edge of lower mandible $1\frac{3}{12}$. Weight 6 oz.

Female.

The female is a little larger, and weighs 7 oz., but resembles the male in

colour. The individual of which the weight is here given was very fat, but I have never met with any that weighed three-fourths of a pound, as described by WILSON!

Length to end of tail 13 inches, to end of claws 14, extent of wings $22\frac{3}{4}$.

In an adult bird of this species, the tongue measures seven-twelfths of an inch in length, and is sagittate at the base, with conical papillæ, of which the outermost is much larger, then contracted, being deeper than broad, and tapering to a very acute compressed point. Aperture of the glottis $\frac{2}{12}$ long, with numerous papillæ behind, the middle two largest. The œsophagus is $5\frac{1}{4}$ inches long, of uniform diameter, measuring about $\frac{3}{12}$ across, and passing along the right side of the neck, along with the trachea. Proventriculus oblong, $\frac{3}{12}$ in diameter, its glandules extremely numerous, oblong, half a twelfth in length. The stomach is a strong gizzard of an oblong form; an inch and a twelfth long, nine twelfths in breadth, its lateral muscles of moderate thickness, the right $\frac{2}{12}$, the left $\frac{3}{12}$, the central tendons oblong, $\frac{3}{12}$ in diameter. The cuticular lining is tough, of moderate thickness, longitudinally rugous, the grinding plates scarcely thicker than the rest. The intestine is 18 inches long, its diameter generally $\frac{2}{12}$. The rectum $2\frac{1}{4}$ inches long; the cœca $2\frac{2}{12}$, very slender, their greatest diameter being only $\frac{1}{12}$; the cloaca globular, about $\frac{1}{2}$ inch in diameter. The stomach was filled with remains of grasshoppers, of a deep red colour, with which the inner coat was tinged, together with the head of a libellula. No gravel or other hard substances.

The trachea moderately extended is $3\frac{9}{12}$ inches long, its transverse diameter $\frac{2}{12}$, diminishing to $\frac{1}{12}$. The rings are unossified and extremely thin, 105 in number; the contractor or lateral muscles feeble; the inferior larynx simple, with a single pair of tracheali-bronchiales, and the usual sterno-tracheales; the bronchi of about 15 half rings.

This individual presented a very remarkable accumulation of fat over the abdominal and pectoral muscles, and especially about the furcula.

KNOT OR ASH-COLOURED OR RED-BREASTED SANDPIPER.

TRINGA ISLANDICA, *Linn.*

PLATE CCCXXVIII.—ADULT IN SUMMER AND WINTER.

The Knot, good reader, is a handsome and interesting species, whether in its spring or in its winter plumage, and, provided it be young and fat, is always welcome to the palate of the connoisseur in dainties. As to its habits, however, during the breeding season, I am sorry to inform you that I know nothing at all, for in Labrador, whither I went to examine them, I did not find a single individual. I have been informed that several students of nature have visited its breeding places; but why they have given us no information on the subject, seeing that not only you and I, but many persons besides, would be glad to hear about it, is what we cannot account for.

I do not wish you to infer from these remarks, that the persons alluded to are the only ones who have neglected to note down on the spot observations which might be interesting and useful. I myself am very conscious of my own remissness in this respect, and deeply regret the many opportunities of studying nature which have been in a manner lost to me, on account of a temporary supineness which has seized upon me, at the very moment when the objects of my pursuit were placed within my reach by that bountiful Being to whom we owe all our earthly enjoyments, and all our hopes of that future happiness which we strive to merit.

I have traced the Knot along the shores of our Atlantic states, from Texas to the entrance of the Bay of Fundy, in the months of April and May, and again in the autumnal months. I have also found it in winter in East Florida, and therefore feel confident that some of the species do not proceed beyond our southern limits at that season. Whilst on the Bay of Galveston, in Texas, in April 1837, I daily observed groups of Knots arriving there, and proceeding eastward, meandering along the shores of the Gulf of Mexico. In the interior of the United States I never observed one, and for this reason I am inclined to think that the species moves northward along the coast. But as I did not find any in Nova Scotia, Labrador, or Newfoundland, I consider it probable that those which betake themselves to the fur countries, turn off from our Atlantic shores when they have reached the

Red-breasted Sandpiper.

1. Summer Plumage 2. Winter.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen. Philad.ª

entrance of the Bay of Fundy. However this may be, it is certain that they reach a very high latitude, and that some stop to breed about Hudson's Bay, where Dr. RICHARDSON found them in summer.

On some few occasions I have observed the Knot associating with the Tell-tale Godwit and Semi palmated Snipe, about a mile from the sea, along the margins of ponds of brackish water; but such localities seemed in a manner unnatural to them, and it was seldom that more than two or three were seen there. Along the shores, in spring, I have not unfrequently thought that they seemed dull, as if they had lost themselves, for they would allow a person to go very near, and seldom took to wing unless induced to do so by companions of other species, who were better aware of their situation. In autumn, when they at times collect into very large flocks, I have often followed them until I obtained as many as I wished. WILSON has so beautifully described their movements at such times, that, although I have often witnessed them myself, I prefer giving his own words.

"In activity it is superior to the Turnstone; and traces the flowing and recession of the waves along the sandy beach with great nimbleness, wading and searching among the loosened particles for its favourite food, which is a small thin oval bivalve shell-fish, of a white or pearl colour, and not larger than the seed of an apple. These usually lie at a short distance below the surface; but in some places are seen at low water in heaps, like masses of wet grain, in quantities of more than a bushel together. During the latter part of summer and autumn, these minute shell-fish constitute the food of almost all those busy flocks that run with such activity along the sands, among the flowing and retreating waves. They are universally swallowed whole; but the action of the bird's stomach, assisted by the shells themselves, soon reduces them to a pulp. Digging for these in the hard sand would be a work of considerable labour, whereas, when the particles are loosened by the flowing of the sea, the birds collect them with great ease and dexterity. It is amusing to observe with what adroitness they follow and elude the tumbling surf, while at the same time they seem wholly intent on collecting their food."

I have however seen the Knot probe the wet sands, on the borders of oozy salt marshes, thrusting in its bill to the feathers on the forehead, and this with the same dexterity as several other species. Its flight is swift, at times rather elevated, and well sustained. At their first arrival in autumn, when they are occasionally seen in great numbers in the same flock, their aërial evolutions are very beautiful, for, like our Parrakeet, Passenger Pigeon, Rice-bird, Red-winged Starling, and other birds, they follow each other in their course with a celerity that seems almost incomprehensible, when the individuals are so near each other that one might suppose it impossible for

them to turn and wheel without interfering with each other. At such times, their lower and upper parts are alternately seen, the flock exhibiting now a dusky appearance, and again gleaming like a meteor.

Many of these young birds continue mottled with dull reddish orange on their lower parts until the winter is far advanced. The old individuals have their whole upper plumage of a uniform grey, and their lower parts white. As those of the first year have their markings at that season handsomer than at any other period of their lives, I have given the figure of one in preference to that of an adult.

It has been supposed by some that two different species of Knot occur in the United States, but I am of a different opinion. The dimensions of birds of this family, as well as of many others, are extremely variable; and, on shooting eight or ten Knots, it would be difficult to find two of them having exactly the same size and proportions. If I add to this the very remarkable change of plumage exhibited by birds of this family before and after maturity, you will not think it strange that WILSON should have mistaken the young of the Knot for a separate species from the old bird in its spring dress. Indeed, I am obliged to tell you that I have been much puzzled, when, on picking up several of these birds from the same flock, I have found some having longer and thicker bills than others, with as strange a difference in the size of their eyes. These differences I have endeavoured to represent in my plate.

My friend JOHN BACHMAN states, that this species is quite abundant in South Carolina, in its autumn and spring migrations, but that he has never seen it there in full plumage. In that country it is called the "May-bird," which, however, is a name also given to the Rice-bird. Along the coasts of our Middle District, it is usually known by the name of "Grey-back."

ASH-COLOURED SANDPIPER, *Tringa cinerea*, Wils. Amer. Orn., vol. vii. p. 36. Winter.
RED-BREASTED SANDPIPER, *Tringa rufa*, Wils. Amer. Orn., vol. vii. p. 57. Summer.
TRINGA ISLANDICA, Bonap. Syn., p. 350.
TRINGA CINEREA, Swains. and Rich. F. Bor. Amer., vol. ii. p. 387.
KNOT or ASH-COLOURED SANDPIPER, Nutt. Man., vol. ii. p. 125.
KNOT or ASH-COLOURED SANDPIPER, *Tringa islandica*, Aud. Orn. Biog., vol. iv. p. 130.

Male, 10¼, 21.

In autumn and spring ranges along the coast from Texas to Labrador. Breeds in the Fur Countries, to a very high latitude. Common.

Adult Male in summer.

Bill rather longer than the head, slender, straight, compressed, tapering, with the tip a little enlarged and blunt. Upper mandible with the dorsal line straight, and slightly declinate, the ridge narrow and flattened until

towards the end, when it becomes considerably broader, the sides sloping, the tip convex above and ending in a blunt point, the edges thick and flattened. Nasal groove extending to near the tip; nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line straight, the sides sloping outwards, with a long narrow groove, the tip a little broader, but tapering.

Head rather small, oblong, compressed. Eyes of moderate size. Neck of ordinary length. Body rather full. Feet rather long, slender; tibia bare a third part of its length; tarsus somewhat compressed, anteriorly and posteriorly with numerous small scutella; hind toe very small, the rest of moderate length, slender, the fourth slightly longer than the second, the third longest; all free, broadly marginate, flattened beneath, and with numerous scutella above. Claws small, slightly arched, compressed, rather obtuse, that of the third toe much larger, with the inner edge dilated.

Plumage very soft, blended on the head, neck, and lower parts, the feathers rather distinct above. Wings very long and pointed; primaries tapering, obtuse, the first longest, the second two-twelfths of an inch shorter, the rest rapidly decreasing; outer secondaries slightly incurved, inner elongated, straight and tapering, one of them extending when the wing is closed to an inch and a quarter from its tip. Tail rather short, nearly even, of twelve rather broad feathers, which taper to a broad point.

Bill and feet black. Iris dark hazel. Upper part of the head and hind neck light grey, tinged with buff, and longitudinally streaked with dusky; fore part of back and scapulars variegated with brownish-black and yellowish, and each feather with several spots of the latter and tipped with whitish; the hind part of the back, rump, and upper tail-coverts white, barred with black; wing-coverts ash-grey, edged with paler. Alula and primary coverts brownish-black, tipped with white; primaries similar, their shafts and the outer margins of all excepting the first three, white, the inner webs towards the base light grey; secondaries and their coverts grey, margined with white. Tail-feathers ash-grey, tinged with brown, and narrowly edged with white. The sides of the head, fore part of neck, breast, and abdomen rich brownish-orange; lower tail-coverts and feathers of the legs white, each of the former with a central dusky narrow-shaped or elongated spot, axillaries white, barred with dusky; lower wing-coverts dusky, with white margins.

Length to end of tail $10\frac{1}{4}$ inches, to end of wings $10\frac{3}{4}$, to end of claws $11\frac{1}{2}$; extent of wings 21; wing from flexure 7; tail $2\frac{9}{12}$; bill along the ridge $1\frac{11}{12}$; along the edge of lower mandible $1\frac{11}{12}$; tarsus $1\frac{1}{4}$; hind toe and claw $\frac{4}{12}$; middle toe and claw $1\frac{11}{12}$. Weight $5\frac{1}{2}$ oz.

The female is similar to the male, but considerably larger.

Length to end of tail $10\frac{3}{4}$ inches. Weight 6 ounces.

In winter.

Bill greenish-black, eye of a darker brown. Feet dull yellowish-green; claws dusky. The upper parts are deep ash-grey, each feather margined with whitish; feathers of the rump greyish-white, upper tail-coverts white, barred with dusky. The quills and tail feathers as in summer. A band from the bill over the eye to the hind part of head, white; loral space, cheeks, and sides of the neck pale grey, streaked with darker; throat and lower parts in general, white; the sides, axillar feathers, and under wing-coverts, barred or spotted with dusky; lower tail-coverts as in summer.

The young in autumn are of a dull light brownish-grey colour above, each feather having a narrow whitish margin, within which is a dusky line. The fore part and sides of the neck, and the fore part of the breast dull greyish-white, with small dusky-grey longitudinal streaks; the band over the eye indistinct, the loral space darker. The bill and feet are of a duller tint, and the eye darker, than in the adult in winter. Weight 4¼ oz.

On the roof of the mouth is a double series of small blunt papillæ. The tongue is very slender, 1 1/12 inches long, emarginate and papillate at the base, channelled above, horny beneath, the point rather acute. The œsophagus is 4¾ inches long, narrow, its diameter 3½ twelfths. The proventriculus is oblong, 5½ twelfths in diameter, 9 twelfths long. The stomach is an extremely powerful gizzard, of a roundish form, 1 inch and 5 twelfths long, its greatest breadth 1¼ inches; the cuticular lining thin, horny, with large longitudinal rugæ. The intestine 25 inches long, its average diameter 3½ twelfths; cœca cylindrical, 3 twelfths long. The contents of the stomach are fragments of mussels and gravel, with which part of the intestine is also filled.

The trachea is 3¼ inches long, flattened, 2½ twelfths broad at the top, diminishing to 2 twelfths; its rings very slender and unossified, 98 in number; the bronchial half-rings about 15. The lateral muscles very thin, the sterno-tracheal slender.

J. G.

Pectoral Sandpiper.

1. Male 2. Female.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

THE PECTORAL SANDPIPER.

TRINGA PECTORALIS, *Bonap.*

PLATE CCCXXIX.—MALE AND FEMALE.

This Sandpiper is not uncommon along the shores of our Eastern States in autumn and winter. It has also lately been found in England, and I have seen a specimen of it in the possession of WILLIAM YARRELL, Esq., of London, who received it from a person who had shot it not far from the metropolis. I first met with this species in the immediate vicinity of Dennisville, in the State of Maine, feeding on the rocky bars of the river at low water. In the neighbourhood of Boston it is more abundant than elsewhere. Mr. NUTTALL states, that "they are killed in abundance on the shores of Cohasset, and other parts of Massachusetts Bay, and are brought in numbers to the market of Boston, being very fat and well-flavoured." "They arrive," he adds, "in flocks about the close of August, and continue there, as well as in New Jersey, till the month of September. In some instances solitary individuals have been killed in the marshes of Charles river, in Cambridge, about the 22nd of July; these were in company with flocks of small Sandpipers (*T. Wilsonii*), but whether pairs may perhaps breed in the neighbouring marshes or not, we have not had the means of ascertaining. While here, they feed on small coleoptera, larvæ, and the common green *Ulva latissima*, as well as some species of fucus or sea-weed, on which they become fat. They utter a low plaintive whistle when started, very similar to that of other species. Like the Snipe they seem fond of damp meadows and marshes, and solitary individuals are often surprised by the sportsman in the manner of that bird."

I have observed that the flight of the Pectoral Sandpiper resembles that of the Knot, and is firm, rapid, and well sustained. It skims rather low over the surface of the water or the land, and at times shoots high up into the air, propelling itself with double rapidity and in perfect silence. It runs with great agility, and probes the sand or wet earth, immersing its bill up to the base. I never saw this species in any part of the interior. Its places of resort during the breeding season, and the changes of plumage which it undergoes, are unknown.

TRINGA PECTORALIS, *Pectoral Sandpiper*, Bonap. Amer. Orn., vol. iv. p. 44.

TRINGA PECTORALIS, Bonap. Syn., p. 318.

PECTORAL SANDPIPER, *Tringa pectoralis*, Nutt. Man., vol. ii. p. 111.

PECTORAL SANDPIPER, *Tringa pectoralis*, Aud. Orn. Biog., vol. iii. p. 601; vol. v. p. 582.

Male, 9¼, 18.

From Nova Scotia to Maryland, along the coast. Rather common. Migratory. Breeds in the north.

Adult Male in summer.

Bill rather longer than the head, slender, sub-cylindrical, straight, flexible, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line straight, slightly decurved towards the end, the ridge convex, towards the end a little flattened, at the point convex, the sides sloping, the edges rather blunt and soft. Nasal groove extending to near the tip; nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line straight, the sides nearly erect, with a long narrow groove, the tip a little broader but tapering.

Head of moderate size, oblong, compressed. Eyes rather large. Neck of moderate length. Body rather slender. Feet of moderate length, slender; tibia bare for a considerable length, tarsus compressed, anteriorly and posteriorly with numerous small scutella; hind toe very small; the rest rather long, slender, the fourth slightly longer than the second, the third longest, all free, scutellate above, flat beneath, slightly marginate; claws rather small, slightly arched, compressed, acute, that of the third toe much larger, with the inner edge dilated.

Plumage very soft, blended beneath, slightly distinct above. Wings long and pointed; primaries tapering, obtuse, the first longest, the second considerably shorter, the rest regularly graduated; outer secondaries short, obliquely rounded, the inner elongated and tapering. Tail of twelve feathers, rather short, nearly even, but with the middle tail feathers much longer and pointed, the rest rounded.

Bill dull olive-green, dusky towards the point. *Iris hazel. Feet dull* yellowish-green; claws dusky. Upper part of the head reddish-brown, the central part of each feather brownish-black; a faint whitish line from the bill to a little beyond the eye; lores dusky; sides of the head and anterior and lateral parts of the neck, with a portion of the breast, light brownish-grey, marked with dark brown lines; chin and the rest of the lower parts white. The feathers on the upper parts are brownish-black, edged with reddish-brown, those on the wings lighter, primary quills dusky; the outer secondaries tinged with grey, the inner like the feathers of the back. Tail-feathers light brownish-grey, slightly margined and tipped with white, the two central dark, like the back.

Purple Sandpiper.

1. Summer. 2. Winter.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

Length to end of tail 9¼ inches, to end of wings 9¼; to end of claws 10½; extent of wings 18; wing from flexure 5$\frac{10}{12}$; tail 2$\frac{7}{12}$; bill along the ridge 1¼, along the edge of lower mandible 1$\frac{2}{12}$; bare part of tibia $\frac{5}{8}$, tarsus 1$\frac{1}{12}$, middle toe $\frac{7}{8}$, its claw $\frac{3}{12}$. Weight 6 oz.

Adult Female in summer.

The female, which is a little larger, is similar to the male.

Mouth very narrow, its width 2½ twelfths. Palate with two rows of reversed papillæ. Tongue very slender, tapering, channelled above, 11 twelfths long. Œsophagus 4½ inches long, its average width 2½ twelfths; proventriculus 3½ twelfths. Stomach oblique, roundish, 10 twelfths long, 9 twelfths in breadth; its lateral muscles large; epithelium dense, longitudinally rugous. Contents of stomach remains of small crustacea, seeds, and fragments of quartz. Intestine 11½ inches long, 1½ twelfths wide; cœca 1¼ inches long, 1 twelfth in width, 1 inch 5 twelfths distant from the extremity; rectum 2 twelfths in width, slightly dilated at the end. Trachea 3¼ inches long, 2 twelfths in breadth, much flattened; the rings 102, slender, unossified. Bronchi wide, of about 12 half rings. Muscles as in the other species of this family. Male.

THE PURPLE SANDPIPER.

TRINGA MARITIMA, *Brunn.*

PLATE CCCXXX.—ADULT IN SUMMER AND IN WINTER.

I am surprised that my worthy friend THOMAS NUTTALL speaks of this species as being scarcely ever seen in the United States, where, to my knowledge, it is on the contrary very abundant, and nowhere more so than in the neighbourhood of the Harbour of Boston, in the markets of which city it is sold in autumn and winter. When I was there, a gunner whom I employed brought me several dozens, which he had killed in the course of a single afternoon. I have also seen some in the markets of New York. Farther south, however, they are rarely met with.

Timid though not shy, they are seen in flocks of eight or ten, on the rocky shores of the sea. They seem to shun sandy beaches, and seldom

advance far inland. While I was on the Bay of Fundy, I observed numerous small flocks winging their way northward, in the month of May. On one occasion, a flock alighted almost at my feet, so that I was obliged to retire to a proper distance before shooting at them.

Their flight is pretty rapid, and when necessary sustained, for I have observed them flying in compact bodies across the Gulf of St. Lawrence. When started along the shores, they emit a feeble *weet*, which is repeated two or three times, take a sweep over the water, and return to the same spot or near it, somewhat in the manner of the Spotted Sandpiper. They are generally very busy while searching for food, run nimbly with the body lowered on the legs, which are much bent, go to the edge of the water, seize on small shell-fish, shrimps and worms, and search industriously among the sea-weeds for marine insects. Their marked predilection for rocky shores has caused them to be named "Rock Snipes" by the gunners of our eastern coast. In autumn and winter the young birds become fat, and afford delicate eating.

I was sadly disappointed at not finding them breeding on any part of the coast of Labrador which I visited, the more so because Dr. RICHARDSON says they are abundant on the shores of Hudson's Bay, where they breed. He gives no description of the nest or localities on which they deposit their eggs, which are said to be "pyriform, 16½ lines long, and an inch across at their greatest breadth. Their colour is yellowish-grey, interspersed with small irregular spots of pale brown, crowded at the obtuse end, and rare at the other."

TRINGA MARITIMA, Bonap. Syn., p. 318.
TRINGA MARITIMA, *Purple Sandpiper*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 382.
PURPLE SANDPIPER, *Tringa maritima*, Aud. Orn. Biog., vol. iii. p. 558.

Male 9½, 14¾.

Abundant from Maine to New York, in autumn and spring. Breeds in Hudson's Bay, and on Melville Island.

Adult in summer.

Bill longer than the head, almost straight, subulate, compressed at the base, flexible; upper mandible with the dorsal line almost straight, being slightly deflected towards the end, the ridge narrow and convex, towards the end broader, the sides sloping, the edges rather obtuse. Nostrils basal, lateral, linear; nasal groove extending to near the end of the bill. Lower mandible with the angle long and very narrow, the dorsal line beyond it slightly concave, the sides sloping upwards with a narrow groove, the tip rounded.

Head rather small, oblong, compressed. Neck shortish. Body full. Feet of moderate length, slender; tibia bare for a short space; tarsus rather short, compressed, anteriorly covered with scutella, laterally reticulated; toes of moderate length, excepting the first, which is very small, third longest and including the claw longer than the tarsus, fourth slightly longer than second; four toes scutellate above, without webs at the base, the middle one with an inner thickish margin, the lateral each with an outer one; claws considerably curved, compressed, obtuse, that of hind toe very small, of middle toe largest, with a dilated thin inner edge.

Plumage soft, blended, on the back rather compact, the feathers rounded. Wings rather long, pointed; primaries tapering, rounded, the first longest, the second slightly shorter; outer secondaries short, obliquely truncate, inner elongated and tapering. Tail short, rounded, the central feathers elongated.

Bill deep orange, towards the end dusky. Edges of eyelids grey, iris orange. Feet light orange, claws dusky. Head greyish-brown, tinged with purple, its sides and those of the neck deep purple; back and wings brownish-black, with purple reflections, the margins of the feathers white; quills brownish-black, their shafts, the tips of all the secondaries, and the greater part of the middle ones, white; middle tail-feathers brownish-black, tinged with purple, the lateral shaded into ash-grey. Upper part of throat greyish-white, fore neck grey; breast, sides, and abdomen white.

Length to end of tail $9\frac{1}{2}$, to end of wings $9\frac{4}{12}$, to end of claws 10; extent of wings $14\frac{3}{4}$; wing from flexure 5, tail $2\frac{1}{2}$; bill along the back $1\frac{5}{12}$, along the edge of lower mandible $1\frac{5}{12}$, tarsus $\frac{11}{12}$; middle toe $\frac{11}{12}$, its claw $\frac{3}{12}$. Weight $3\frac{1}{4}$ oz.

Adult in winter.

The principal differences in the winter plumage are, that the lower parts are pale grey, while the upper have the purple tints much fainter, the white edgings substituted by dull grey.

THE BUFF-BREASTED SANDPIPER.

TRINGA RUFESCENS, *Vieill.*

PLATE CCCXXXI.—MALE AND FEMALE.

It is a curious fact that although this beautiful bird is by no means rare, at particular periods, along the shores of our Eastern Districts, it remained unknown to WILSON, BONAPARTE, and, until found in England by Mr. YARRELL, to myself. It was first discovered by VIEILLOT in Louisiana, where, however, I never met with it. My friend NUTTALL, who has also described it, states that it is often seen near Boston, in company with the Pectoral Sandpiper, and is not uncommon in the market there. To my friend Mr. YARRELL I am indebted for the use of his specimen, from which I made the figure in the act of starting on wing. The other figure was taken from an American specimen, procured at Boston, and now in my possession. I regret, however, that I can say nothing respecting the habits or haunts of this bird, farther than that having seen a wing of it in the possession of my friend Captain JAMES CLARK ROSS, I think it probable that it breeds near the Arctic circle, as he received a wing from the sailors, who had found it in the course of one of the numerous inland excursions in the desolate regions from which these intrepid navigators have recently returned.

BUFF-BREASTED SANDPIPER, *Tringa rufescens*, Nutt. Man., vol. ii. p. 113.
BUFF-BREASTED SANDPIPER, *Tringa rufescens*, Aud. Orn. Biog., vol. iii. p. 451.

Male, 8, 18.

Along the Atlantic shores from Maine to New York. Rare. Migratory. Breeds in high northern latitudes.

Adult Male.

Bill about the length of the head, slender, sub-cylindrical, very slightly decurved, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line very slightly decurved towards the end, the ridge convex, the sides sloping, the edges rather blunt and soft. Nasal groove extending to near the tip, nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line straight, the sides sloping outwards, with a long narrow groove, the tip a little broader, but tapering.

Buff breasted Sand-piper

1 Male 2 Female

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

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Head of moderate size, oblong, compressed. Eyes rather large. Neck of moderate length. Body rather slender. Feet rather long, slender; tibia bare a third part of its length; tarsus compressed, anteriorly and posteriorly with numerous small scutella; hind toe very small, the rest of moderate length, slender, the fourth slightly longer than the second, the third longest; all free, scutellate above, flat beneath, slightly marginate; claws rather small, slightly arched, compressed, rather obtuse, that of the third toe much larger, with the inner edge dilated.

Plumage very soft, blended on the lower parts, the feathers rather distinct above. Wings very long, pointed; primaries tapering, obtuse, the first longest, the second almost equal, the rest rapidly graduated; outer secondaries slightly incurved, narrow, very obliquely sinuate on the outer web towards the end, the inner web rounded, and extending beyond the outer; inner secondaries very narrow, tapering, acute, reaching, when the wing is closed, to within half an inch of its tip. Tail of moderate length, nearly even, with the two middle feathers exceeding the rest, and having the shaft projecting, of twelve narrow, rounded feathers.

Bill dull olive-green, dusky towards the point. Iris hazel. Feet dull yellowish-green, claws dusky. The general colour of the upper parts is greyish-yellow, each feather blackish-brown in the centre; wing-coverts lighter; quills and their coverts light greyish-brown, greenish-black at the end, but with a whitish tip; the inner webs whitish in the greater part of their breadth, and beautifully dotted with black in undulating lines; the inner secondaries like the feathers of the back. The two middle tail-feathers greyish-brown, dark brown, glossed with green, at the end, and slightly margined and tipped with white, the rest gradually paler to the outer, margined and tipped with white, within which are two lines of blackish-brown. Sides of the head, fore neck, and sides light yellowish-red, the throat paler, the sides of the neck and body spotted with brownish-black; the rest of the lower parts paler and unspotted. The lower wing-coverts are white, those near the edge of the wing black in the centre, the primary coverts dotted with black, and having a spot of the same near the end.

Length to end of tail 8 inches, to end of wings $8\frac{2}{12}$; extent of wings 18; wing from flexure $5\frac{3}{4}$; tail $2\frac{11}{12}$; bill along the ridge $\frac{10}{12}$, along the edge of lower mandible 1; bare part of tibia $\frac{7}{12}$; tarsus $1\frac{4}{12}$, middle toe $\frac{10}{12}$, its claw $\frac{2}{12}$. Weight $2\frac{1}{2}$ oz.

Adult Female.

The female is somewhat larger than the male, which it resembles in colour, but has the lower parts paler, and the feathers of the upper parts of a lighter brown, with an inner margin of brownish-black and an outer of greyish-yellow.

THE RED-BACKED SANDPIPER.

TRINGA ALPINA, *Linn.*

PLATE CCCXXXII.—MALE IN SUMMER, AND ADULT IN WINTER.

In autumn and winter, this species is abundant along the whole range of our coast, wherever the shores are sandy or muddy, from Maine to the mouths of the Mississippi; but I never found one far inland. Sometimes they collect into flocks of several hundred individuals, and are seen wheeling over the water near the shores or over the beaches, in beautiful order, and now and then so close together as to afford an excellent shot, especially when they suddenly alight in a mass near the sportsman, or when, swiftly veering, they expose their lower parts at the same moment. On such occasions a dozen or more may be killed at once, provided the proper moment is chosen.

There seems to be a kind of impatience in this bird that prevents it from remaining any length of time in the same place, and you may see it scarcely alighted on a sand-bar, fly off without any apparent reason to another, where it settles, runs for a few moments, and again starts off on wing. When searching for food they run with great agility, following the retiring waves, and retreating as they advance, probing the wet sands, and picking up objects from their surface, ever jerking up the tail, and now and then uttering a faint cry, pleasant to the ear, and differing from the kind of scream which they emit while on wing.

When I was in the Floridas in winter, I found this species abundant, and my party shot a great number of them, on account of the fatness and juiciness of their flesh. They all appeared to have their plumage greyer than those shot in the Carolinas at the same season, and not one exhibited the least redness on the back, although that colour is so conspicuous in spring before they leave us for the north. They usually take their departure from the south about the first of April, reach the Middle Districts by the fifteenth of that month, and in a few days assume their summer plumage. I have observed that at this season the male birds are frequently in the habit of raising their wings and running in that position for a few steps, when they close them, and nod to the nearest female. None of the other sex, however, seemed to take the least notice of this homage. On our way to Labrador

Red-backed Sandpiper?

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

1. Summer Plumage. 2. Winter.

Lith.d Printed & Col.d by J. T. Bowen. Philad.a

we saw flocks of these birds passing, but we found none breeding in that country. My friend Mr. MACGILLIVRAY has given me the following account of the habits of this species during the breeding season.

"About the middle of April, the Purres betake themselves to the moors, in the northern parts of Scotland, and in the larger Hebrides, where they may be found scattered in the haunts selected by the Golden Plovers, with which they are so frequently seen in company that they have obtained the name of Plovers' Pages. In the Hebrides, from this season until the end of August, none are to be found along the shores. The nest is a slight hollow in a dry place, having a few bits of withered heath and grass irregularly placed in it. The eggs, four in number, are ovato-pyriform, an inch and four-twelfths in length, eleven-twelfths in breadth, oil-green or light greenish-yellow, irregularly spotted and blotched with deep brown, the spots becoming more numerous toward the larger end, where they are confluent. The young, like those of the Golden Plover and Lapwing, leave the nest immediately after exclusion, run about, and when alarmed, conceal themselves by sitting close to the ground and remaining motionless. If at this period, or during incubation, a person approaches their retreats, the male especially, but frequently the female also, flies up to meet the intruder, settles on a tuft near him, or runs along and uses the same artifices for decoying him from the nest or young as the Plover or Ring Dotterel. When the young are fledged, the birds gather into small flocks, which often in the evenings unite into larger, and join those of the Golden Plover. They rest at night on the smoother parts of the heath, and both species, when resting by day, either stand or lie on the ground. When one advances within a hundred yards of such a flock, it is pleasant to see them stretch up their wings as if preparing for flight, utter a few low notes, and immediately stand on the alert, or run a few steps. At this season, however, they are not at all shy. Towards the end of August, the different colonies betake themselves to the sandy shores. On a large sand-ford in Harris, I have at this season seen many thousands at once, running about with extreme activity in search of food. This place seemed a general rendezvous, and after a few weeks the host broke up and dispersed, few if any remaining during the winter."

TRINGA CINCLUS and ALPINA, Linn. Syst. Nat., vol. i. p. 251, 429.
RED-BACKED SANDPIPER, *Tringa alpina*, Wils. Amer. Orn., vol. vii. p. 5
TRINGA ALPINA, Bonap. Syn., p. 317.
TRINGA ALPINA, *American Dunlin*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 383
DUNLIN or OX-BIRD, Nutt. Man., vol. ii. p. 106.
RED-BACKED SANDPIPER, *Tringa alpina*, Aud. Orn. Biog, vol. iii. p. 580.

Male, 8½. 15.

From Nova Scotia to Texas, along all muddy or sandy shores, during autumn and spring. Common. Breeds in great numbers on the Arctic coasts.

Adult Male in summer.

Bill longer than the head, slender, sub-cylindrical, nearly straight, being slightly curved towards the end, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line nearly straight, slightly sloping at the base, and slightly decurved towards the end, the ridge narrow, towards the end flattened, at the point convex, sides sloping, edges rather blunt and soft. Nasal groove long, extending to near the point; nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line slightly concave, the sides sloping outwards, towards the end convex.

Head rather small, oblong, compressed. Eyes rather small. Neck of moderate length. Body rather full. Feet slender, of moderate length; tibia bare a considerable way up, anteriorly and posteriorly scutellate, as is the compressed tarsus; hind toe very small and elevated, anterior toes of moderate length, slender; inner toe slightly shorter than outer, middle toe considerably longer, all scutellate above, marginate with prominent papillæ, and free. Claws small, slightly arched, extremely compressed, blunt; edge of middle claw dilated and thin.

Plumage very soft, blended; on the back the feathers rather distinct. Wings long and pointed; primaries tapering, obtuse, the first longest, the second a little shorter, the rest rapidly graduated; secondaries rather short, obliquely cut at the end with a recurved blunt point, the inner elongated and tapering. Tail rather short, even, but with the two middle feathers considerably longer, of twelve feathers.

Bill and feet black. Iris dark brown. The upper part of the head, the back and the scapulars, are chestnut-red, each feather brownish-black in the centre, and the scapulars barred with the same colour. The wing coverts greyish-brown, as are the quills, the bases and tips of the secondaries and part of the outer webs of the middle primaries white. Tail light brownish-grey, the two middle feathers darker. Forehead, sides of the head and hind neck pale reddish-grey, streaked with dusky; fore neck and anterior part of breast greyish-white, streaked with dusky; on the breast a large patch of brownish-black; abdomen and lower tail-coverts white, the latter with dusky markings.

Length to end of tail $8\frac{1}{2}$ inches, to end of wings $8\frac{7}{12}$; extent of wings 15, wing from flexure $4\frac{1}{12}$; tail $2\frac{5}{12}$; bill along the ridge $1\frac{7}{12}$, along the edge of lower mandible $1\frac{6}{12}$; tarsus 1; middle toe $\frac{10}{12}$, its claw $\frac{2}{12}$. Weight 3 oz.

Adult in winter.

Curlew Sandpiper.

1. Adult Male. 2. Young.

Drawn from Nature by J.J.Audubon, F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen. Phila.ª

The bill, feet and eyes as above; the general colour of the upper parts is brownish-grey, varying in different individuals in intensity of tint. The wings and tail are as in summer. Throat greyish-white, sides of the head and neck, and fore part of the latter, pale brownish-grey, faintly streaked with darker, as are the sides; the rest of the lower parts white. with a few streaks on the breast.

THE CURLEW SANDPIPER.

TRINGA SUBARQUATA, *Temm.*

PLATE CCCXXXIII.—ADULT AND YOUNG.

In the course of my extensive rambles along our coasts and in the interior, I have seen only three birds of this species, all of which I have kept with care, considering the Cape Sandpiper or Pigmy Curlew as the rarest of its genus with us. It appears to resort to particular districts; two of my birds were shot at Great Egg Harbour in New Jersey, in the spring of 1829, the other on Long Island near Sandy Hook. No other birds were near them, and I approached them without much difficulty. They were wading along the shores up to the knees, picking up floating garbage and sand-worms. In their stomachs I found fragments of minute shells, slender red-worms, and bits of marine plants. The one killed on Long Island was a fine male in full plumage, and from it I made the figure that has been engraved in the plate. The others were females or young birds of the preceding year. One, in plain plumage, was drawn; the other, mottled beneath with patches of white and dull rufous, I considered as a female which might perhaps have perfected its colouring that season. I have seen a few specimens in New York, and two in Boston; and my friend JOHN BACHMAN has one or two in his possession.

TRINGA SUBARQUATA, Bonap. Syn., p. 317.
CAPE CURLEW OR SANDPIPER, Nutt. Man., vol. ii. p. 104.
CURLEW SANDPIPER, *Tringa subarquata*, Aud. Orn. Biog., vol. iii. p. 444.

Accidental on the Florida coast in winter, rare on those of the middle districts. Breeds in high latitudes. Migratory.

Adult Male.

Bill longer than the head, slender, subcylindrical, flexible, very slightly decurved, compressed at the base, the point obtuse. Upper mandible with the dorsal line at first slightly sloping, then nearly straight, and towards the end slightly decurved, the ridge convex but narrow, the sides sloping, the edges rather blunt and soft. Nasal groove extending to near the tip; nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line straight, the sides nearly erect, with a long narrow groove, the tip tapering but rounded.

Head of moderate size, oblong, compressed. Eyes of moderate size. Neck of moderate length, rather slender. Body rather slender. Feet rather long, slender; tibia bare about a third of its length; tarsus compressed, anteriorly and posteriorly covered with numerous scutella; hind toe very small; the rest of moderate length, slender, the fourth a little longer than the second, the third longest, all free, scutellate above, flat beneath, slightly marginate; claws small, slightly arched, compressed, acute, that of third toe largest, with the inner edge slightly dilated.

Plumage very soft, blended beneath, slightly distinct above. Wings long and pointed; primaries tapering, obtuse, the first longest, the second scarcely shorter, the rest rapidly graduated; outer secondaries short, incurved, obliquely truncate, the inner web extending beyond the outer; the inner secondaries elongated, tapering. Tail rather short, slightly rounded, of twelve rounded feathers, the two middle a little longer.

Bill dark olive-green, dusky towards the point. Iris hazel. Feet light olive, claws dusky. The head, neck and breast are bright yellowish-red, the sides whitish, the lower tail-coverts white, with a brownish-black spot towards the end. The central parts of the feathers on the upper part of the head are dark brown, and there are slight streaks of the same on the hind neck and sides of the breast. The upper parts are mottled with brownish-black and dull red, the rump pale brownish-grey, as are the smaller wing-coverts. Quills greyish-brown, the primaries dark, the outer secondaries light and tipped with white, the inner darker and glossed with green. Upper tail-coverts white, spotted with brown and red; tail pale brownish-grey, glossed with green.

Length to end of tail $8\frac{3}{4}$ inches, to end of wings $9\frac{2}{12}$; extent of wings 16; wing from flexure 5; tail $2\frac{2}{12}$; bill along the back $1\frac{1}{4}$, along the edge of lower mandible $1\frac{5}{12}$; bare parts of tibia $\frac{1}{2}$; tarsus $1\frac{1}{12}$, middle toe 1, its claw $\frac{3}{12}$. Weight $2\frac{1}{4}$ oz.

Adult Female.

The bill, iris, and feet as in the adult. On the upper parts the feathers are brown, edged with darker, and margined with greyish-yellow; the lore, cheeks and sides of the neck and body are greyish-yellow, with dusky lines;

Long-legged Sandpiper.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen. Phila.a

a broad band from the mandible over the eye, the fore part of the neck, and the rest of the lower parts white. Quills and tail as in the adult, but lighter.

Length to end of tail 7¾ inches; extent of wings 14½. Weight 1¾ oz

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LONG-LEGGED SANDPIPER.

TRINGA HIMANTOPUS, *Bonap.*

PLATE CCCXXXIV.—ADULT IN SPRING AND WINTER.

I have often spoken of the great differences as to size and colour that are observed in birds of the same species, and which have frequently given rise to mistakes, insomuch, that the male, the female, and the young, have been considered as so many distinct species. The Long-legged Sandpiper has been treated in this manner, and has latterly reappeared under the name of *Tringa Douglassii*, in the Fauna Boreali-Americana of my friends RICHARDSON and SWAINSON. BONAPARTE was, in truth, the first who described this bird; and although some differences might be found between his specimen and the *one* described in the work just mentioned, they are trifling compared with those which I have observed between seven or eight individuals all procured from the same flock at a single shot. It is strange that neither BONAPARTE nor SWAINSON have mentioned the sex of their specimen.

On the morning of the 4th of April, 1837, while seated among the drift-wood that had accumulated on the southern shore of the island of Barataria, forty miles from the south-west pass of the Mississippi, and occupied in observing some Pelicans, I saw a flock of about thirty Long-legged Sandpipers alight within ten steps of me, near the water. They immediately scattered, following the margin of the retiring and advancing waves, in search of food, which I could see them procure by probing the wet sand in the manner of Curlews, that is, to the full length of their bill, holding it for a short time in the sand, as if engaged in sucking up what they found. In this way they continued feeding on an extended line of shore of about thirty yards, and it was pleasing to see the alacrity with which they simultaneously advanced and retreated, according to the motions of the water. In about three quarters of an hour, during all which time I had watched them with attention, they removed a few yards beyond the highest wash of the waves,

huddled close together, and began to plume and cleanse themselves. All of a sudden they ceased their occupation, stood still, and several of them emitted a sharp *tweet-tweet*, somewhat resembling the notes of *Totanus solitarius;* immediately after which seven birds of the same species passed close to me, and alighted near those which I had already watched. They at once began to feed, and as I thought that the first flock might join them, and that I might lose the opportunity of procuring specimens, in sufficient number, I fired and killed eleven. The rest flew off, and were joined by the second group, the whole flying to windward in a compact body, and emitting every now and then their sharp *tweet, tweet*, until out of sight and hearing.

My son JOHN obtained several of these birds on the same island while they were feeding on the margins of a fresh water pond; and we saw them on almost every island and bay on our way to the Texas, where we also procured some on Galveston Island.

The flight of these Sandpipers is rapid and regular. They move compactly, and often when about to alight, or after being disturbed, incline their bodies to either side, showing alternately the upper and lower parts. On foot they move more like Curlews than Tringas, they being as it were more sedate in their deportment. At times, on the approach of a person, they squat on the ground, very much in the manner of the Esquimaux Curlew, *Numenius borealis;* and their flesh is as delicate as that of the species just named.* In the stomach of several individuals I found small worms, minute shell-fish, and vegetable substances, among which were the hard seeds of plants unknown to me. I suspect that in summer and autumn they feed on small fruits and berries, though of this I have no proof.

Among those which we procured, I found the differences in the colour of the plumage quite as great as in *Scolopax noveboracensis*, some of the younger birds being yet in their winter dress, while the older had already assumed a reddish colour on the cheeks, the top of the head, and the breast. The females were all larger than the males, and differed from each other not only in the markings of the plumage, but also in the length of the bill, to the extent of a quarter of an inch, and of the legs, to a still greater extent. Whether or not this species assumes a uniform reddish tint in the breeding season, such as is observed in the Curlew Sandpiper, *Tringa subarquata*, I am unable to say, although I am much inclined to think that it does.

Their passage through the United States is very rapid, both in spring and autumn. Some few spend the winter in Lower Louisiana, but nearly all proceed southward beyond the Texas.

TRINGA HIMANTOPUS, Bonap. Syn., p. 316.

TRINGA DOUGLASSII, Swains. *Douglass' Sandpiper*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 379.

TRINGA HIMANTOPUS, *Slender-shank Sandpiper*, Swains. and Rich. F. Bor. Amer. vol. ii. p. 380.

LONG-LEGGED SANDPIPER, *Audubon's Stilt Sandpiper*, *Douglass' Stilt Sandpiper*, Nutt. Man., vol. ii. pp. 138, 140, 141.

LONG-LEGGED SANDPIPER, *Tringa himantopus*, Aud. Orn. Biog., vol. iv. p. 332

Male, 7½–8¾, 15½–17. Female, 8½–10½, 16½–18.

Abundant in Texas in spring. Rare in the Middle Districts. Breeds in the Fur Countries. Migratory.

Male in spring.

Bill much longer than the head, very slender, sub-cylindrical, very slightly decurved, compressed at the base, the end rather depressed, considerably enlarged. Upper mandible with the dorsal line almost straight, being very slightly decurved towards the end, the ridge narrow, convex, flattened towards the tip, the sides sloping, with a narrow groove extending nearly to the end, the edges rather blunt and soft, the tip decurved. Nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line straight, towards the end slightly deflected, the sides sloping outwards, with a long narrow groove, the tip a little broader.

Head small, oblong, compressed. Eyes small. Neck rather long. Body slender. Feet long, very slender; tibia bare for an inch; tarsus long, slender, compressed, covered before and behind with numerous small scutella; hind toe very small, the rest of moderate length, slender, the second very slightly longer than the fourth, the third very little longer; short basal webs, running out along the margins, that between the third and fourth toes larger. Claws rather long, very slender, slightly arched, tapering, compressed.

Plumage very soft, blended; the feathers somewhat distinct on the back. Wings very long, pointed; primaries tapering, the first longest, the second slightly shorter, the rest rapidly graduated; outer secondaries slightly incurved, obliquely sinuate on the outer web towards the end, the inner web rounded; inner secondaries very narrow, tapering, reaching to three-fourths of an inch of the longest primary when the wing is closed. Tail of moderate length, nearly even, but with the two middle feathers exceeding the rest by two and a half twelfths of an inch, of twelve narrow, rounded feathers.

Bill black. Iris brown. Feet dull yellowish-green, claws black. The upper parts are brownish-black, the feathers margined with reddish-white, the edges of the scapulars with serriform markings of the same; rump and upper tail-coverts white, transversely barred with dusky; tail light grey, the feathers white at the base and along the middle. Primary quills and their coverts brownish-black, the inner tinged with grey, the shaft of the outer primary white, secondaries brownish-grey, margined with reddish-white, the inner dusky. A broad whitish line over the eye; loral band dusky; auri

culars pale brownish-red; fore part and sides of neck greyish-white, tinged with red, and longitudinally streaked with dusky; the rest of the lower parts pale reddish-brown, transversely barred with dusky; the middle of the breast and the abdomen without markings. Dimensions of five individuals.

Length to end of tail, . . .	8$\frac{3}{4}$	8$\frac{1}{4}$	7$\frac{3}{4}$	8	7$\frac{1}{2}$
. . . . . wings, . .	9$\frac{1}{4}$	8$\frac{3}{8}$	8$\frac{1}{4}$	8$\frac{3}{4}$	8$\frac{3}{4}$
. . . . . claws, . .	11$\frac{1}{4}$	10$\frac{5}{8}$	10	10$\frac{1}{2}$	10$\frac{7}{8}$
Extent of wings, ...	16$\frac{3}{4}$	16	15$\frac{1}{2}$	17	16
Weight of an individual, . .	2$\frac{3}{4}$ oz.				

Female.

The female is considerably larger, but otherwise resembles the male. Dimensions of five individuals.

Length to end of tail, . . .	10$\frac{1}{2}$	11	9$\frac{1}{4}$	10$\frac{3}{4}$	8$\frac{1}{2}$
. . . . . wings, . .	11	10$\frac{3}{4}$	11$\frac{3}{4}$	11$\frac{1}{2}$	10$\frac{1}{8}$
. . . . . claws, . .	13$\frac{1}{4}$	12$\frac{1}{2}$	11$\frac{1}{2}$	12$\frac{3}{4}$	11$\frac{3}{4}$
Extent of wings, ...	18	16$\frac{1}{2}$	16$\frac{7}{8}$	16$\frac{1}{2}$	17$\frac{3}{4}$

Weight of two individuals, 4 oz., 3$\frac{3}{4}$ oz.

The winter plumage differs considerably; the bill, iris, and feet are as above. The upper parts are brownish-grey, the head narrowly streaked with dusky; the rump as in summer; the scapulars plainly margined with whitish; the quills as in summer. The band over the eye lighter, the loral space grey; the fore part and sides of the neck greyish-white, longitudinally streaked with grey, the sides similar, and with the lower tail-coverts barred with grey, the rest of the lower parts white.

Length to end of tail in a male 9 inches; extent of wings 16$\frac{1}{2}$; wing from flexure 5$\frac{1}{4}$; tail 2$\frac{4}{12}$; bill along the ridge 1$\frac{6}{12}$, along the edge of lower mandible 1$\frac{7}{12}$; bare part of tibia 1; tarsus 1$\frac{3}{12}$; hind toe and claw $\frac{4}{12}$; middle toe $\frac{9}{12}$, its claw $\frac{2}{12}$.

The roof of the mouth is flat, with three rows of papillæ. The tongue is 1 inch 5 twelfths long, emarginate and papillate at the base, very slender, concave above, tapering to a point. The œsophagus is 4 inches long, very narrow, its diameter 2 twelfths. The proventriculus is oblong, 7 twelfths in length, 3$\frac{1}{2}$ twelfths in diameter. The stomach is a strong gizzard of a roundish form, compressed, 8 twelfths long, 7$\frac{1}{2}$ twelfths broad; its lateral muscles large, its epithelium very dense, thick, longitudinally rugous, and of a reddish-brown colour. The intestine is 12$\frac{1}{2}$ inches long, its anterior part 2$\frac{3}{4}$ twelfths in diameter, the hind part 1$\frac{1}{2}$ twelfths. The rectum is 1$\frac{1}{2}$ inches long; the cœca 11 twelfths long, 1 twelfth in diameter, obtuse.

The trachea is 3 inches long, slender, its diameter at the upper part 1$\frac{3}{4}$

Schinz's Sandpiper

1. Male. 2. Female.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

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twelfths, gradually diminishing to the lower part, where it is 1 twelfth. The rings, about 110 in number, are slender and unossified, the two last divided. The bronchi have about 15 half rings. The contractor muscles are thin, the sterno-tracheal slender; and there is a pair of inferior laryngeal muscles going to the first bronchial rings.

In another individual, the intestine was 13¼ inches long, the rectum 1½ inches, the cœca 1 inch.

The contents of the gizzard in both were fragments of shells, small black seeds, and much sand and gravel.

SCHINZ'S SANDPIPER.

TRINGA SCHINZII, *Brehm.*

PLATE CCCXXXV.—MALE AND FEMALE.

Although I have met with this species at different times in Kentucky, and along our extensive shores, from the Floridas to Maine, as well as on the coast of Labrador, I never found it breeding. Indeed I have not met with it in the United States excepting in the latter part of autumn and in winter. Those procured in Labrador were shot in the beginning of August, and were all young birds, apparently about to take their departure. My drawing of the two individuals represented in the plate was made at St. Augustine in East Florida, where I procured them on the 2nd of December, 1831. I have always found these birds gentle and less shy than any other species of the genus. They fly at a considerable height with rapidity, deviating alternately to either side, and plunge toward the ground in a manner somewhat resembling that of the Solitary Sandpiper. When accidentally surprised, they start with a repeated *weet*, less sonorous than that of the bird just mentioned. They search for food along the margins of pools, creeks, and rivers, or by the edges of sand-bars, and mix with other species.

TRINGA SCHINZII, Bonap. Syn., p. 249.

TRINGA SCHINZII, *Schinz's Sandpiper*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 384.

SCHINZ'S SANDPIPER, Nutt. Man., vol. ii. p. 109.

SCHINZ'S SANDPIPER, *Tringa Schinzii*, Aud. Orn. Biog., vol. iii. p. 529.

Male, 7½, 14¾.

From Labrador to St. Augustine in Florida, and Kentucky, during autumn. Missouri. Saskatchewan Plains. Not very rare. Migratory. Breeds in high northern latitudes.

Adult Male in winter.

Bill about the length of the head, slender, sub-cylindrical, straight, compressed at the base, the point slightly enlarged and rather obtuse. Upper mandible with the dorsal line straight, excepting at the tip, the ridge narrow and convex, broader and flattened towards the end, the sides sloping, the edges rather obtuse. Nasal groove extending to near the tip; nostrils basal, linear, pervious. Lower mandible with the angle long and extremely narrow, the dorsal line straight, the sides sloping outwards, the tip a little broader than that of the upper.

Head rather small, oblong, compressed. Neck of moderate length. Body rather slender. Feet rather long, slender; tibia bare a third part of its length; tarsus compressed behind, covered anteriorly and posteriorly with numerous scutella, which scarcely leave any intermediate space; hind toe extremely small; the rest of moderate length, slender, the fourth slightly longer than the second, the third longest; all free, there being only a very slight rudimentary web between the third and fourth, flat beneath, slightly marginate with rather pointed scales. Claws small, slightly arched, compressed, rather acute, that of the third toe much larger, within the inner edge dilated.

Plumage very soft, blended on the lower parts, the feathers distinct above. Wings very long, pointed; primaries tapering, obtuse, the first longest, the second almost equal, the rest rapidly graduated; outer secondaries incurved, narrow, obliquely sinuate at the end of the outer web, the inner rounded and extending beyond the outer; inner secondaries very narrow, tapering to a point, reaching, when the wing is closed, to about half an inch from its tip. Tail of moderate length, nearly even, but with the two middle feathers exceeding the rest, the number of feathers twelve.

Bill and feet dusky. Iris brown. The general colour of the upper parts is brownish-black, each feather edged with yellowish-grey, the scapulars with light red. Wing-coverts greyish-brown, the shaft black; primary and secondary coverts tipped with white; quills brownish-grey, darker towards the tips, the inner primaries and outer secondaries more or less edged and tipped with white; the tail-coverts white, with a dusky spot, excepting the two central, which are blackish, with a few greyish-white markings. Tail-feathers light grey, the two middle brownish-black towards the end. Sides of the head, fore neck, anterior part of breast and sides greyish-white, with

Semipalmated Sandpiper.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

1. Summer Plumage. 2. Winter.

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small lanceolate central brownish-black spots ; the rest of the lower parts white.

Length to end of tail $7\frac{1}{12}$ inches, to end of wings $7\frac{7}{12}$, to end of claws $7\frac{9}{12}$; extent of wings $14\frac{3}{4}$, bill along the back $\frac{10\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{}{12}$; wing from flexure $4\frac{10\frac{1}{2}}{12}$; tail $2\frac{5}{12}$; tarsus $\frac{11}{12}$; middle toe $\frac{9\frac{1}{2}}{12}$, its claws $\frac{3}{12}$.

Adult Female in winter.

The female is similar to the male, but a little smaller.

In some individuals, about six of the middle tail-coverts are black, the lateral barred with white and dusky.

SEMIPALMATED SANDPIPER.

TRINGA SEMIPALMATA, *Wils.*

PLATE CCCXXXVI.—ADULT.

This species enters the Texas early in April, in great numbers, although in small parties, some composed of young, others of old birds, and not unfrequently accompanied by other species. At this season it moves northward with celerity, both along the shores of the sea and those of some of our larger streams, by routes which they also follow in their retrograde migration at the approach of winter. Many, however, remain in the southern parts of the United States all summer, and I have seen numbers of them on the coasts, as well as on the Keys of Florida. There being a very remarkable difference of size in individuals of the same sex, and still more between males and females, the latter being the larger, I was induced to compare a great number of them, and in consequence have concluded that the difference depends on age, for the young of either sex are generally pretty similar as to the length of the bill and legs, during their first autumn and winter. In Labrador I shot a whole brood when just able to fly, together with several old birds, which kept apart. Among the latter I found differences as to size and proportions enough to induce persons having nothing better than skins to imagine that several species might be made out of them.

About the period when these birds prepare to return southward, they congregate in large flocks, the young separate from the old. In Labrador this

takes place from the beginning to the middle of August. There I found this species dispersed in pairs, and having nests, early in June; but all our endeavours to procure any were fruitless, so cunningly had they disposed of them, and so effectually did they mislead us by squatting on the moss for several minutes at a time, as if sitting on their eggs. On our approaching them on such occasions, they would run or fly off to a short distance, in various directions, and renew their wiles.

I have often seen considerable flocks of this species along the shores of the Ohio and Mississippi during autumn, and have reason to believe that some are also to be found then on the Missouri. At this season, when they feed on fresh-water insects, worms, and small coleoptera, they are very fat, and afford excellent eating; which is rarely the case when they are along the sea-shores, as their food then consists of small shell-fish and marine insects, for which they are often seen probing the sands in the manner of Curlews. They are active, quarrelsome, and impatient, moving from one spot to another unexpectedly, and perhaps returning to the same place a few minutes after. On taking wing, they utter their *tweet tweet* simultaneously, and whilst on the ground emit murmuring sounds peculiar to themselves. Their flight is swift and well sustained, and when alarmed, or previous to alighting, their evolutions through the air are very pleasing to the beholder.

SEMIPALMATED SANDPIPER, *Tringa semipalmata*, Wils. Amer. Orn., vol. vii. p. 131.
TRINGA SEMIPALMATA, Bonap. Syn., p. 316.
SEMIPALMATED SANDPIPER, Nutt. Man., vol. ii. p. 136.
SEMIPALMATED SANDPIPER, *Tringa semipalmata*, Aud. Orn. Biog., vol. v. p. 110.

Adult, 6¾, 12½.

Exceedingly abundant from Texas to Maine, in winter, spring, and autumn. Breeds from Labrador northward. Columbia river. Migratory.

Bill as long as the head, slender, straight, compressed, tapering from the base to near the point, which is slightly swelled, but with the tip rather acute. Upper mandible with the dorsal line straight, the ridge narrow and convex, a little broader and flattened towards the end, the sides sloping, with the nasal groove extending to near its tip; lower mandible with the angle very long and narrow, the outline straight, towards the end slightly declinate, the sides sloping a little outwards, with a groove extending to near the tip, which is a little widened and rather obtuse.

Head of moderate size, oblong, compressed. Neck rather short. Body compact, ovate. Feet of moderate length and slender; tibia bare a fourth of its length; tarsus of moderate length, compressed, scutellate before and behind, so as to leave scarcely any intermediate space; hind toe very short and extremely slender; anterior toes rather long, slender, connected by webs, of

which the outer is larger, and extends to opposite the second joint of the third toe, both however margining the toes to their extremity; the outer toe a little longer than the inner, and not much exceeded by the third. Claws small, much compressed, tapering, slightly arched, that of the third toe larger, with the inner edge a little dilated.

Plumage soft, blended on the neck and lower parts, somewhat compact on the upper. Wings long, pointed; primaries tapering, obtuse, the first longest, the second a twelfth and a half shorter, the rest rapidly graduated; outer secondaries incurved, obliquely pointed, inner straight, tapering, one of them reaching to nine-twelfths of an inch from the tip of the longest primary. Tail rather short, doubly emarginate, that is, with the middle feathers a quarter of an inch longer than the lateral, which are a little longer than some of the intermediate.

Bill greenish-dusky; iris hazel; feet dull yellowish-green, claws black. The upper part of the head, the cheeks, the hind part and sides of the neck are ash-grey, streaked with dusky; on the rest of the upper parts the feathers are dusky-brown, margined with pale grey, those on the rump and the upper tail-coverts blackish-brown; secondary coverts tipped with white; alula and primary coverts brownish-black, the latter tipped with white; primary quills greyish-black, with white shafts; secondary quills gradually more grey; the primaries externally edged with white toward the base, as are the outer secondaries in a fainter degree, as well as terminally, some of them also having the greater part of the inner web greyish-white. The two middle tail-feathers greyish-black on the inner web, their outer web and all the other feathers ash grey. The anterior part of the forehead and a band over the eye greyish-white; the lower parts of the neck and body white.

Length to end of tail $6\frac{3}{4}$ inches; to end of wings $6\frac{3}{4}$, to end of claws $7\frac{1}{8}$; extent of wings $12\frac{1}{2}$; bill along the ridge $1\frac{1}{12}$; wing from flexure 4; tail $1\frac{3}{12}$; bare part of tibia $\frac{5}{12}$; tarsus $\frac{11}{12}$; hind toe $\frac{2}{12}$, its claw $\frac{1}{12}$; middle toe $\frac{3}{12}$, its claw $\frac{1}{12}$. Weight 1 oz.

The female is considerably larger than the male, but otherwise similar.

In winter the upper parts are ash-grey, tinged with brown, each feather with a central dusky line.

In a female preserved in spirits, the roof of the mouth is flat, with the edges a little prominent, and two medial series of reflected papillæ. The tongue is $10\frac{1}{4}$ twelfths long, slender, papillate at the base, concave above, rather obtuse and somewhat jagged at the extremity, horny in nearly its whole length. The extremity of the upper mandible is somewhat scrobiculate; the lower mandible deeply concave. The œsophagus, which is $2\frac{1}{4}$ inches in length, is very slender, being scarcely so wide as the trachea, its diameter nearly uniform, and about $1\frac{1}{4}$ twelfths. The stomach is elliptical,

a little compressed, ½ inch long, 4½ twelfths broad, its lateral muscles moderately developed, its tendons large, the epithelium tough, longitudinally rugous, and of a reddish-brown colour. It contains particles of quartz and small seeds. The intestine, of which the diameter is generally 1 twelfth, measures 10 inches in length; and the cœca, which come off at the distance of ⅜ of an inch from the extremity, are 1 inch long, and three-fourths of a twelfth in their greatest diameter.

The trachea, which is 1 inch 10 twelfths long, passes to the right side of the neck, along with the œsophagus, as in all birds destitute of crop, is considerably flattened, and varies in diameter from 1¼ twelfths to ⅝ twelfth. The rings are about 98; the bronchial half rings about 15. The lateral muscles are strong, and terminate in the sterno-tracheal, at the distance of a twelfth and a half from the inferior larynx, which is destitute of any other muscle than a slender continuation of the contractor, which goes to the first bronchial ring.

LITTLE SANDPIPER.

TRINGA PUSILLA *Wils.*

PLATE CCCXXXVII.—MALE AND FEMALE.

Before proceeding to detail my observations on the habits of this humble but extremely interesting bird, I deem it necessary to inform you that I disclaim as species belonging to the United States, or even to any part of North America, the following, which however are given in the Synopsis of the Prince of MUSIGNANO, and in the work of my generous friend THOMAS NUTTALL, viz., *Tringa platyrhincha* of TEMMINCK, *T. Temminckii* of LEISLER, *T. minuta* of LEISLER, T. *minuta* of TEMMINCK, and *T. pusilla* of BECHSTEIN. This opinion of mine I divulged to the Prince of MUSIGNANO in London, and he has on this account omitted these species in his recently published list. The extreme confusion that exists with respect to these species, and many others of the same tribe, is in my opinion caused solely by the anxiety of authors to discover or invent new species, often founding distinctions on slight differences in the length of bills, tarsi, or

Little Sandpiper.

1. Male Summer Plumage. 2. Female.

Drawn from Nature by J.J Audubon, F.R.S.F.L.S.

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toes. Now, reader, if in such large species as the *Grus Americana*, for example, the young has been palmed on the world of science as a distinct species for nearly a century past, without any other kind of reason or proof than that obtained from mere dried skins, can we be surprised, that in birds so small as the present, opportunities should have occurred of committing errors? My opinion, which I do not present to you without due consideration, is, that we have in the United States only the diminutive species badly figured by WILSON, and almost as carelessly described by that wonderful man. To enter upon a long discussion as to the identity of the present bird with any of the small Tringas enumerated by European authors, would be to me quite as irksome as it would prove unprofitable to you, for there scarcely exists a single description of these birds sufficiently accurate to enable one to decide with certainty. All are as nearly as possible of the same size and colour, excepting in those deviations dependent upon age, and the different state of plumage. But in the most intimately allied species there are always marked differences in habits, and especially in the sound of the voice.

That this species is naturally disposed to seek alpine sections of the country for the purpose of reproduction, I obtained abundant proof whilst in Labrador, where I found it plentiful, and breeding on the moss-clad crests of the highest rocks, within short distances of the sea. There are means through which the experienced student of Nature may discover the hidden treasures of birds of this family, which to others would prove useless, and which I shall here point out. At all periods, excepting those at which they have nests containing eggs, or young so small and delicate as to require all the care of their parents, the flight of the present species usually resembles that of the Common Snipe, *Scolopax Wilsonii;* but when startled from the nest, or from any place in its immediate vicinity, it rises on wing, and moves off low over the ground with deeply incurved wings, and with a whirring motion of these organs, which, if as rapid as that of a Partridge, would appear quite similar; but, on such occasions, our bird moves slowly before you, and instead of uttering the note of independence, as it were, which it emits at other times while freely and fearlessly travelling, it gives out sounds weakened as if by grief or anxiety, for the purpose of inducing you to follow it. If on the ground, it acts in a similar manner, moves off slowly, and limping as if crippled, and this at times quite as much as if you had really come upon it while on its nest, or surprised it with its young. On all such occasions, reader, you ought to mark well the spot from which the bird has started, and, to assure yourself that your eye may not be deceived, throw your cap or hat at your feet to serve as a beacon, should

necessity afterwards call for it, to guide you around the place until you have discovered the nest which you are desirous of seeing.

Through these means, on the 20th of July, 1833, I after some search found the nest and eggs of this species. The birds flew, to use the words of my Journal, like Partridges, and not like Tringas. I marked them well, for both the female and the male flew from near the nest, and having left my fisher's hat where I then stood, I walked carefully over the moss hither and thither, until at last I came upon the spot. My pleasure would have been greatly augmented had any of my young companions been near; but the sailors who had rowed me to the foot of the rocks exhibited little more delight than they would have done on finding that their grog had been stopped. For my part, I felt as happy as when, on the same coast, I for the first time saw the nest and eggs of the Black-crowned Warbler. Four beautiful eggs, larger than I had expected to see produced by birds of so small a size, lay fairly beneath my eye as I knelt over them for several minutes in perfect ecstasy. The nest had been formed first, apparently, by the patting of the little creature's feet on the crisp moss, and in the slight hollow thus produced were laid a few blades of slender dry grass, bent in a circular manner, the internal diameter of the nest being two inches and a half, and its depth an inch and a quarter. The eggs, which were in shape just like those of the Spotted Sandpiper, *Totanus macularius*, measured seven and a half eighths of an inch in length, and three-fourths of an inch in breadth. Their ground colour was a rich cream-yellow tint, blotched and dotted with very dark umber, the markings larger and more numerous towards the broad end. They were placed with their pointed ends together, and were quite fresh. The nest lay under the lee of a small rock, exposed to all the heat the sun can afford in that country. No sooner had the little creatures felt assured that I had discovered their treasure, than they manifested a great increase of sorrow, flew from the top of one crag to another in quick succession, and emitted notes resembling the syllables *peep*, *peet*, which were by no means agreeable to my feelings, for I was truly sorry to rob them of their eggs, although impelled to do so by the love of science, which affords a convenient excuse for even worse acts.

This pair, however, would seem to have been late in depositing their eggs, for on the 4th of August my party and myself saw young birds almost as large as their parents, and agreeing in almost every point with the descriptions given of *Tringa Temminckii*. Many small flocks of these birds, consisting of old and young, were already departing from Labrador, and were seen on all our excursions. On the 11th of August, we also found adult and young in great numbers. But not a single newly hatched individual of this

species could I procure, while the young of the Ring Plover were very abundant.

I was surprised, whilst rambling along the shores of the Raritan river, between New Jersey and New York, to find a great number of little Sandpipers, on the 29th of July, 1832, leading me to believe that they had probably bred on the elevated portions of Staten Island, although on the other hand, they might have been barren birds. I have been equally astonished to see large flocks of this species on the sand-bars along the shores of the Ohio, below the great Rapids, about the middle of August. According to Dr. RICHARDSON, it "breeds within the Arctic Circle, arriving as soon as the snow melts. It was observed on the 21st of May, on the swampy borders of small lakes in latitude 66°. The crops of those we killed were filled with a soft blackish earth, and some white worms." From the above quotation, I would almost be inclined to believe that, like some others of our birds, which are said to be found in northern Europe, this might be one.

The habits of the Little Sandpiper have been described with great care and accuracy by my friend THOMAS NUTTALL. His account is indeed so perfect that I shall here lay it before you in preference to one by myself. "The Peeps, as they have been called, are seen in the salt marshes around Boston, as early as the 8th of July; indeed, so seldom are they absent from us in the summer season, that they might be taken for denizens of the state, or the neighbouring countries. When they arrive, now and then accompanied by the semi-palmated species, the air is sometimes, as it were, clouded with their flocks. Companies led from place to place in quest of food, are seen whirling suddenly in circles, with a desultory flight, at a distance resembling a swarm of hiving bees, seeking out some object on which to settle. At this time, deceiving them by an imitation of their sharp and querulous whistle, the fowler approaches, and adds destruction to the confusion of their timorous and restless flight. Flocking together for common security, the fall of their companions, and their plaintive cry, excite so much sympathy among the harmless Peeps, that, forgetting their own safety, or not well perceiving the cause of the fatality which the gun spreads among them, they fall sometimes in such a state of confusion, as to be routed with but little effort, until the greedy sportsman is glutted with his timorous and infatuated game. When much disturbed, they, however, separate into small and wandering parties, and are now seen gleaning their fare of larvæ, worms, minute shell-fish, and insects, in the salt marshes, or on the muddy and sedgy shores of tide rivers and ponds. At such times they may be very nearly approached, betraying rather a heedless familiarity than a timorous mistrust of their most wily enemy; and even when rudely startled they will often return to the same place in the next instant, to pursue their

lowly occupation of scraping in the mud, whence probably, originated the contemptible appellation of *Humility*, by which they and some other small birds of similar habits have been distinguished. For the discovery of their food, their flexible and sensitive awl-like bills are thrust into the mire, marshy soil, or wet sand, in the manner of the Snipe and Woodcock, and in this way they discover and rout from their hiding retreat, the larvæ and soft worms which form a principal part of their fare. At other times, they also give chase to insects, and pursue their calling with amusing alacrity. When at length startled, or about to join the company they have left, a sharp and monotonous whistle, like the word *peet*, or *peep*, is uttered, and they instantly take to wing, and course along with the company they had left. On seeing the larger marsh-birds feeding, as the Yellow-shanks and others, a whirling flock of the Peeps will descend among them, being generally allowed to feed in quiet; and at the approach of the sportsman, these little timorous rovers are ready to give the alarm. At first, a slender *peep* is heard, which is then followed by two or three others, and presently *peep, pip, pip' p' p* murmurs in a lisping whistle through the quailing ranks, as they rise on the wing, and inevitably entice with them their larger but less watchful associates. Towards evening in fine weather, the marshes almost re-echo with the shrill but rather murmuring or lisping, subdued, and querulous call of *peet*, and then a repetition of *pédee, pédee, dĕe-dĕe*, which seems to be the collecting cry of the old birds calling together their brood, for, when assembled, the note changes into a confused murmur of *peet, peet*, attended by a short and suppressed whistle."

During my never-to-be-forgotten residence at Henderson, on the banks of the fair Ohio, I was in the habit of frequently seeing large flocks of these birds on the sandy shores of that river, during the autumnal months, and finding after awhile that they could easily be driven into a partridge net, I laid one accordingly on several occasions when, by using gentle means, I induced many a dozen of these tiny, fat, and delicious birds to enter and become prisoners. I clipped the wings of many of them, and turned them loose in my garden, for the purpose of studying their habits in this sort of half-confined state; but they were all soon destroyed by those most destructive pests, the Norway rats, which at that time infested all my premises.

I found these birds quite abundant on the whole coast of Florida, during winter, and I have no doubt that many remain with us all the year; indeed, it would not at all surprise me to hear that some of them actually breed in parts of the alpine districts of our Middle States. I have also found them equally numerous along the whole coast of the Gulf of Mexico, during my recent visit to Texas, when, late in April, some of them were still travelling

from farther south-west, and proceeding eastward. In South Carolina, they are frequent in spring and autumn, along the borders of the rice fields, and inland fresh-water ponds.

Since writing the above, Mr. TOWNSEND has furnished me with a list of some of the birds seen by him on the Rocky Mountains and the Columbia river, in which this species is mentioned as being found along the shores of that celebrated stream of the far west.

LITTLE SANDPIPER, *Tringa pusilla*, Wils. Amer. Orn., vol. v. p. 32.
TRINGA PUSILLA, Bonap. Syn., p. 319.
WILSON'S SANDPIPER, *Tringa Wilsonii*, Nutt. Man., vol. ii. p. 120.
LITTLE SANDPIPER, *Tringa pusilla*, Aud. Orn. Biog., vol. iv. p. 180.

Male, $5\frac{5}{8}$, $11\frac{3}{8}$.

Distributed along the whole coast from Texas eastward, and throughout all intermediate districts to the Columbia river. Breeds in Labrador and the Fur Countries. Found even along the lakes and ponds in the woods. Very abundant. Migratory.

Adult Male in summer plumage.

Bill shorter than the head, slender, straight, compressed, tapering from the base to near the point, which is slightly swelled, but with the tip rather acute. Upper mandible with the dorsal line straight, the ridge narrow and convex, a little broader and flattened towards the end, the sides sloping, with the nasal groove extending to near the tip. Lower mandible with the angle very long and narrow, the dorsal line straight, toward the end slightly declinate, the sides sloping a little outwards, with a groove extending to near the tip.

Head of moderate size, oblong, compressed. Neck rather short. Body compact, ovate. Feet of moderate length and slender; tibia bare a fourth of its length; tarsus of moderate length, compressed, scutellate before and behind, so as to leave scarcely any intermediate space; hind toe extremely small; anterior toes rather long, slender, free, slightly margined, and with numerous scutella above. Claws small, slightly arched, much compressed, that of the third toe larger, with the inner edge a little dilated.

Plumage soft, blended on the neck and lower parts, somewhat compact on the upper. Wings long, pointed; primaries tapering, obtuse, the first longest, the second very little shorter, the third rather more than one-eighth of an inch shorter than the second, the rest rapidly decreasing; outer secondaries incurved, obliquely rounded, inner straight, tapering, one of them reaching to two-twelfths of an inch of the end of the first quill. Tail of moderate length, doubly emarginate, that is with the middle feathers

considerably longer than the lateral, which are a little longer than the intermediate.

Bill greenish-dusky; feet pale dull yellowish-green; claws black; iris hazel. The feathers on the upper part of the head, and back, including the scapulars, smaller wing-coverts, and inner secondaries, black, broadly margined with light brownish-red; some of the scapulars margined externally with white, and the larger glossed with green. Alula, primary coverts, primary quills, and outer secondaries, greyish-black, all more or less narrowly tipped with greyish-white; secondary coverts largely tipped with the same; the primaries externally edged with the same toward the base, as are the other secondaries in a fainter degree, the inner webs of some of the latter greyish-white towards the base. Rump and upper tail-coverts black. The two middle tail-feathers black, with pale brownish-red margins, the next feather on each side greyish-brown, margined with greyish-white, the outer four pale brownish-grey, very narrowly margined externally, more broadly round their points and along the inner edges with greyish-white; lateral tail-coverts with the outer web white. From the forehead over the eye to the occiput, a band of dull greyish-white, faintly streaked with dusky; loral band brownish-dusky, that colour extending to the ear-coverts; the rest of the cheeks dull greyish-white, faintly streaked with dusky; the throat greyish-white; the sides and fore part of the neck of the same colour, faintly streaked with dusky; the rest of the lower parts, including the axillar and lateral rump feathers, pure white; the lower surface of the wing pale brownish-grey, the coverts margined and tipped with greyish-white; the shafts of the primaries white.

Length to end of tail $5\frac{5}{8}$ inches, to end of wings $5\frac{1}{8}$, to end of claws $5\frac{3}{4}$; extent of wings $11\frac{3}{8}$; from tip of bill to carpal joint 2; wing from flexure $3\frac{3}{12}$; tail $1\frac{3}{12}$; bill along the ridge $\frac{3}{12}\frac{1}{2}$; tarsus $\frac{3}{12}\frac{1}{2}$; hind toe and claw $\frac{2}{12}\frac{1}{2}$, middle toe and claw $\frac{10}{12}\frac{1}{2}$; outer toe and claw $\frac{8}{12}$; inner $\frac{1}{12}$ shorter.

Adult Female.

The female is somewhat larger than the male, but similarly coloured.

In autumn, previous to the moult, the upper parts are of a darker colour, on account of the wearing of the red margins of the feathers.

On the roof of the mouth is a series of papillæ, and the tongue is 7 twelfths long, extremely slender, and tapering to a fine point. The œsophagus is 2 inches and 11 twelfths long, 1 twelfth in diameter; the proventriculus enlarged to $2\frac{1}{2}$ twelfths, its length 5 twelfths. The stomach is a powerful gizzard, $\frac{1}{2}$ inch long, $4\frac{1}{2}$ twelfths broad; its lateral muscles large, as are the tendons. Its contents were coleopterous and other insects. The epithelium longitudinally rugous, and of a brownish-red colour. The intestine of

Sanderling Sandpiper

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

1. Winter plumage: 2. Summer.

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moderate length, measuring 9½ inches, its average diameter 1½ twelfths. The cœca 1½ inches long, their greatest diameter ¾ of a twelfth.

The trachea is $1\frac{8}{12}$ inches long, flattened, unossified, 1½ twelfths in diameter at the top, diminishing to 1 twelfth; the number of rings about 105. Bronchial half-rings 15.

SANDERLING SANDPIPER.

TRINGA ARENARIA, *Bonap.*

PLATE CCCXXXVIII.—MALE AND FEMALE.

Although the Sanderling extends its rambles along our Atlantic shores, from the eastern extremities of Maine to the southernmost Keys of the Floridas, it is only an autumnal and winter visiter. It arrives in the more Eastern Districts about the 1st of August, on the sea-shores of New York and New Jersey rarely before the 10th of August, and seldom reaches the extensive sand-banks of East Florida previous to the month of November. Along the whole of this extended coast, it is more or less abundant, sometimes appearing in bands composed of a few individuals, and at times in large flocks, but generally mingling with other species of small shore-birds. Thus I have seen Turnstones and Knots mixed with the Sanderlings, but in such cases they are perhaps wanderers, which have not succeeded in meeting with companions of their own species, that associate with the birds of which I here speak.

The Sanderling obtains its food principally by probing the moist sands of the sea-shores with its bill held in an oblique position. At every step it inserts this instrument with surprising quickness, to a greater or less depth, according to the softness of the sand, sometimes introducing it a quarter of an inch, sometimes to the base. The holes thus made may be seen on the borders of beaches, when the tide is fast receding, in rows of twenty, thirty, or more; in certain spots less numerous; for it appears that when a place proves unproductive of the food for which they are searching, they very soon take to their wings and remove to another, now and then in so hurried a manner that one might suppose they had been suddenly frightened. The contents of the stomach of those which I shot while thus occupied, were

slender sea-worms, about an inch in length, together with minute shell-fish and gravel. At other times, when they were seen following the receding waves, and wading up to the belly in the returning waters, I found in them small shrimps and other crustacea.

In their flight the Sanderlings do not perform so many evolutions as Sandpipers usually display. They generally alight about a hundred yards off the place from which they started, and run for a yard or so, keeping their wings partially extended. They move on the sand with great activity, running so as to keep pace with a man walking at a moderate rate. Their flight is rapid and straighter than that of other small species, and when on wing they seldom exhibit each surface of the body alternately, as many others are wont to do.

I have thought that the migrations of this bird are carried on under night; but of this I am by no means certain, although I observed some small flocks, composed of a few dozen individuals, crossing the Gulf of St. Lawrence, at a little height over the water, in the month of June. The lateness of the season induced me to hope that I might find some nests of the Sanderling on the coast of Labrador; but in this I was disappointed, although some young birds were seen at Bras d'Or, in little parties of four or five individuals. This was early in August, and they were already on their way southward.

The Sanderling affords good eating, especially the young, and the sportsman may occasionally kill six or seven at a shot, provided he fires the moment the flock has alighted, for immediately after the birds spread abroad in search of food.

The female may easily be distinguished from the male, by her superior size; but in the colouring of birds of both sexes, I have observed as much difference as in the Turnstone. Even during winter, some are more or less marked with black and brownish-red, while others, which, however, I easily ascertained to be younger birds, were of an almost uniform light grey above, each feather edged with dull white; but in all those which I have examined, whether old birds in the full spring or summer dress, in which I have shot some in May, in the Middle Districts, or young birds in autumn and during winter, I have seen no difference in the colours of the bill, legs, and toes.

RUDDY PLOVER, *Charadrius rubidus*, Wils. Amer. Orn., vol. vii. p. 129. Summer.
SANDERLING PLOVER, *Charadrius Calidris*, Wils. Amer. Orn., vol. vii. p. 68. Winter.
CALIDRIS ARENARIA, *Sanderling*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 366.
SANDERLING PLOVER, *Calidris arenaria*, Nutt. Man., vol. ii. p. 4.
SANDERLING. *Tringa arenaria*, Aud. Orn. Biog., vol. iii. p. 231; vol. v. p. 582.

Male, $7\frac{10}{12}$, $12\frac{1}{2}$.

From Texas along the coast to Maine in autumn and spring, extremely abundant. Breeds from lat. 55° northward.

Adult Male in winter.

Bill rather longer than the head, slender, subcylindrical, straight, flexible, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line nearly straight, slightly sloping to beyond the middle, the ridge convex, towards the end flattened, at the point convex; sides sloping, edges rather blunt and soft. Nasal groove long; nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line slightly convex, the sides sloping outwards, towards the end convex.

Head of moderate size, oblong, compressed. Eyes rather large. Neck of moderate length. Body rather slender. Feet slender, of moderate length; tibia bare a considerable way up; tarsus compressed, anteriorly and posteriorly with numerous small scutella; hind toe wanting; toes of moderate length, slender; inner toe shorter than outer, middle toe considerably longer, all scutellate above and marginate, with prominent papillæ, and free; claws small, slightly curved, extremely compressed, blunt.

Plumage very soft, blended beneath, slightly distinct above. Wings long and pointed; primaries tapering, obtuse, the first longest, the second a little shorter, the rest rapidly graduated; secondaries rather short, obliquely rounded, curved inwards, the inner elongated and tapering. Tail rather short, rounded, of twelve feathers, the two middle ones considerably longer.

Bill and feet black. Iris brown. The general colour of the plumage above is ash-grey, the edges paler; the lower parts pure white. Alula and primaries brownish black, the latter with more or less white on their outer webs or along the shaft; secondaries white, the outer with a patch of brownish-black towards the end, the inner ash-grey; primary coverts brownish-black, tipped with white; secondary coverts greyish-brown, broadly tipped with white. Middle tail feathers greyish-brown, their shafts white, the rest of a paler tint on the outer webs, white on the inner, the lateral almost pure white.

Length to end of tail $7\frac{1}{12}$, to end of wings $7\frac{9}{12}$, to end of claws $8\frac{1}{4}$; extent of wings $12\frac{1}{2}$; wing from flexure $4\frac{1}{12}$; tail $2\frac{2}{12}$; bill along the back 1; along the edge of lower mandible $1\frac{1}{12}$; tarsus 1; middle toe $\frac{3}{4}$, its claw $\frac{2}{12}$. Weight $1\frac{3}{4}$ oz.

Adult Female in winter.

The female is precisely similar to the male.

In its summer plumage, this species differs in the following particulars. The bill, feet, and iris, are as described above, and the lower parts are also pure white, excepting the fore part and sides of the neck, which, as well as the upper parts of the head, and the hind neck, are pale yellowish-red, spotted with brownish-black. The back is similarly marked, the spots

larger, and on the scapulars disposed in bars; the tips of most of the feathers greyish-white, the wings and tail are as in winter.

Mouth extremely narrow, its width only 2 twelfths. Palate moderately concave, as in the Snipes, with two series of reversed papillæ. Tongue 11 twelfths long, slender, tapering, concave above, horny toward the end. Œsophagus 3 inches 2 twelfths long, two twelfths wide; proventriculus 3 twelfths in breadth. Stomach large, roundish, oblique, 10 twelfths long, 9 twelfths in breadth; its lateral muscles large; the epithelium dense, longitudinally rugous, and of a reddish colour. Contents of stomach remains of insects and sand. Intestine 9¾ inches long, its width 2½ twelfths; cœca 1 inch 1 twelfth long, 1½ twelfths in width, their distance from the extremity 1¼ inches; rectum slightly dilated at the end. Trachea 2½ inches long, its breadth 2 twelfths, much flattened; the rings very narrow, unossified, 130 in number. Bronchial half rings about 15. Muscles as in other genera of this family.

Genus II.—PHALAROPUS, *Briss.* PHALAROPE.

Bill scarcely longer than the head, straight, slender, at the base somewhat cylindrical, toward the end broader and flattened, the tips narrowed; upper mandible with the dorsal line straight, excepting at the end, where it is a little decurved, the ridge convex, flattened at the broad part, the sides slightly sloping, the edges rounded, and near the tip inflected; nasal groove linear, extending to near the tip; lower mandible with the angle very long and narrow, the sides convex and sloping outwards, the tip narrowed. Nostrils basal, linear-elliptical. Head small, with the fore part high and rounded; neck of moderate length; body rather full. Feet rather short, slender; tibia bare a short way above the joint; tarsus much compressed, narrowed before and behind, covered anteriorly with numerous scutella; toes very slender, first extremely small, free, with a slight membrane beneath; second shorter than the fourth; third toe much longer, all scutellate above, the anterior margined on both sides with lobed and pectinated membranes, which are united at the base, so as to render the foot nearly half-webbed, the outer web much longer than the inner. Claws very small, compressed,

Red Phalarope

1. Adult Male 2. Winter plumage.

Drawn from Nature by J.J.Audubon F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Phulad.a

arched, obtuse. Plumage soft and blended ; wings long and pointed, first quill longest, secondary quills rather short, the inner much elongated. Tail of moderate length, much rounded, of twelve feathers, the lower tail-coverts as long.

THE RED PHALAROPE.

PHALAROPUS FULICARIUS, *Bonap.*

PLATE CCCXXXIX.—ADULT MALE AND FEMALE IN SUMMER, AND ADULT IN WINTER.

My first drawing of the Red Phalarope was made at Louisville in Kentucky, a few weeks after my removal to that place, in 1808. One afternoon, while returning from the house of my hospitable friend General CROGHAN, I observed a large flock of birds proceeding along the shores of the Ohio. They were quite unknown to me, and therefore extremely anxious I was to procure some of them. I therefore ran through the woods until I got ahead of them, went to the margin of the river, and concealed myself at some distance from them. They swam beautifully, played about, picked up substances floating on the water, now dispersed, and again came close together, until at length coming opposite to a small sand-bar stretching out from the shore to the distance of a few yards, they directed their course towards it, and waded out. When just landing, they were so close to each other that I could not withstand the temptation, and so levelled my gun, pulled both triggers, and saw that I had made considerable havoc among them. Those which had not been touched, flew off in a compact body, while the birds that had been but slightly wounded made for the water, and swam away so fast that they seemed to be running on the surface. I picked up seventeen, which I found so beautiful and withal so plump, that I felt quite delighted, and resolved to shoot as many more as I could. But I did not succeed in killing more than other five that day.

I had never until then seen a Phalarope of any kind, although I had inspected some shocking figures of these elegant birds, figures so unlike the originals that even with the aid of a name printed beneath, you could not recognise them. Such of my acquaintances at Louisville as had been accus-

tomed to shoot birds, had never seen one of this species on the Ohio, or in any part of the country. It was then and there that I made my first drawing of the Red Phalarope, which I shewed to ALEXANDER WILSON during his visit to Louisville. It being late in October, the specimens which I had procured were all in their grey livery, and proved capital eating. As I was anxious to watch the rest of the flock, which I think must have been composed of at least a hundred individuals, I went to the same place on the following afternoon. As I crossed Bear Grass creek, near its junction with the Ohio, I observed eight or ten of them walking over the green moss on the surface of the water near the shore. Of these I succeeded in killing three. In the course of a walk of two miles along the banks of the river, I could see none; and some Blue-winged Teals happening to pass over from the stream in the direction of a pond between it and Kieger's ferry-house, I went in pursuit of them. Before I got up they had flown away, or had passed over without alighting. There, however, to my great joy, I found all the Phalaropes swimming along the margins and picking up the seeds of grasses. They were much less shy than when I met with them on the river, so that I soon procured eight more at a single shot. The rest rose, emitting quick sharp cries, performed a few evolutions at a considerable height, and went off to the westward.

On the 1st of September, 1831, while on board the packet ship Columbia, commanded by my good friend JOSEPH C. DELANO, Esq., Nantucket being distant about sixty miles, we came upon an extensive bank of sea-weeds and froth, about a mile in length, which I was told was produced by the action of the tides. On this bed were hundreds of Phalaropes of this species, walking as unconcernedly as if on land. As we approached it, they rose and flew around the vessel for a few minutes, and when we had passed through we saw them re-alight.

I have not seen the Red Phalarope alive on any other occasion than those mentioned above; and I am indebted to my generous friend Captain JAMES CLARK ROSS for the beautiful specimens in summer plumage, from which the figures in the plate were taken.

None of those which I had wounded attempted to dive. When caught and held in the hand, they merely fluttered and tried to escape, like other small birds. Their flight was rapid, resembling that of the Red-backed Sandpiper, *Tringa alpina*, and they performed various evolutions, sometimes skimming over the water, when they kept more apart than either when rising at first, or when they reached a certain height, on attaining which they pursued their course, with alternate inclinations to either side.

According to Captain J. C. Ross, these birds breed in great numbers far north. The eggs, of which he has favoured me with some, measure an inch

and a quarter by seven-eighths; their ground colour is dull greenish-yellow irregularly blotched and dotted with reddish-brown.

RED PHALAROPE, *Phalaropus hyperboreus*, Wils. Amer. Orn., vol. ix. p. 75.
PHALAROPUS FULICARIUS, Bonap. Syn., p. 341.
PHALAROPUS FULICARIUS, *Flat-billed Phalarope*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 407.
RED PHALAROPE, Nutt. Man., vol. ii. p. 236.
RED PHALAROPE, *Phalaropus fulicarius*, Aud. Orn. Biog., vol. iii. p. 404.

Adult, 7½, 13.

Occasionally in flocks in Kentucky, on the Ohio, during autumn often at sea on the Grand Banks of Newfoundland. Breeds in high northern latitudes, as far as Melville Peninsula. Stragglers at times reach as far south as New Jersey, but the route of this species toward warmer regions is along the Pacific coast.

Adult Male in summer.

Bill scarcely longer than the head, straight, slender, nearly cylindrical, towards the end broader and flattened, the tip narrow. Upper mandible with the dorsal line straight, excepting at the end, where it is a little curved, the ridge convex, flattened at the broad part, the sides slightly sloping, the edges rounded, and near the slightly curved obtuse tip inflected. Nasal groove linear, extending to near the tip; nostrils basal, linear-elliptical. Lower mandible with the angle very long and narrow, the sides convex, the tip narrowed, obtuse.

Head small, with the fore part high and rounded; eyes small. Neck of moderate length. Body rather full. Feet rather short, slender; tibia bare, a short way above the joint; tarsus much compressed, narrowed before and behind, covered anteriorly with numerous scutella; toes very slender, first extremely small, free, with a slight membrane beneath; second shorter than third, which is a little longer; all scutellate above, the anterior margined on both sides with lobed and pectinated membranes, which are united at the base, so as to render the foot nearly half-webbed, the outer web much longer than the inner. Claws very small, compressed, arched, obtuse, that of the middle toe with an inner sharp edge.

Plumage soft and slender, the feathers on the back and wings somewhat distinct. Wings long and pointed; primary quills tapering, but rounded, the first longest, the second a little shorter, the rest rapidly graduated; secondary quills rather short, obliquely truncate, the inner tapering and elongated, so as nearly to equal the longest primaries when the wing is closed. Tail of moderate length, much rounded, of twelve feathers.

Bill greenish-yellow, black at the point. Iris brown. Feet pale greyish-

blue. Upper part of the head black; loral space and chin blackish-grey; sides of the head, and a band round the occiput, white. Sides and fore part of the neck, breast, abdomen, and lower tail-coverts deep orange-red. Fore part of the back, scapulars, and inner secondaries, black, the feathers edged with whitish; wing-coverts deep ash-grey; quills dark greyish-brown, their shafts and basal parts white; the ends of the secondary and primary coverts, and the basal part of the outer webs of the primaries, being white, a band of that colour is seen on the wing when it is extended. Upper tail-coverts orange-red; tail deep grey, darker towards the end, slightly tipped with reddish.

Length to end of tail 7½ inches, to end of claws 6¾; extent of wings 13; wing from flexure 5; tail 2¾; bill along the back $\frac{11}{12}$, along the edge of lower mandible $1\frac{1}{12}$; tarsus $\frac{10}{12}$; middle toe $\frac{10}{12}$, its claw $\frac{2}{12}$.

Adult Female in summer.

The female has the upper part variegated with light red and brownish-black, the central part of each feather being of the latter colour, the upper tail-coverts entirely of the former. Wings greyish-black, with a transverse white band; tail deep grey as in the male. The lower parts are of a less pure red than those of the male, being paler and tinged with grey.

Adult in winter.

The winter plumage of the adult is very different in colour. The bill is nearly black, the feet as in summer. The upper part of the head, cheeks, fore part and sides of the neck, breast, abdomen, lower and upper tail-coverts, and a band across the wing, are white; a brownish-black line from the eye to the occiput, which is of the same colour, as well as the middle of the hind neck. The back, scapulars, and inner secondaries, are ash-grey, the wings as in summer.

Length to end of tail 7½ inches.

Hyperborean Phalarope.

1. Male. 2. Female. 3. Young in autumn.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

Genus III.—LOBIPES, *Cuv.* LOBEFOOT.

Bill at least as long as the head, extremely slender, straight, nearly cylindrical, towards the end tapering; upper mandible with the dorsal line straight, unless at the end, where it is a little decurved, the ridge broad and depressed, the sides slightly sloping, the edges rounded, and inflected towards the narrow acute tip; nasal groove long, linear; lower mandible with the angle very long and narrow, the sides convex, the tip narrowed. Head small, with the fore part high and rounded; neck of moderate length; body rather slender. Feet moderate, slender; tibia bare at the lower part; tarsus extremely compressed, narrowed before and behind, covered anteriorly with numerous scutella; toes slender, first extremely small, free, with a slight membrane beneath, second slightly shorter than fourth; toes all scutellate above, the anterior webbed at the base, and margined on both sides with a lobed or sinuated membrane. Claws very small, arched, compressed, acute. Plumage soft and blended. Wings long and pointed, the first quill longest; inner secondaries very long and tapering; tail of twelve feathers, rounded or nearly even. Tongue extremely slender, grooved above, tapering to a horny point; œsophagus narrow, uniform; stomach rounded, muscular, with the epithelium dense and longitudinally rugous; intestine of moderate length and width; cœca rather long. Trachea much flattened, with a single pair of inferior laryngeal muscles.

HYPERBOREAN PHALAROPE.

Lobipes hyperboreus, *Lath.*

PLATE CCCXL.—Male, Female, and Young.

Few individuals of this species are ever seen to the south of New York. Near Boston I procured several, and my learned friend Thomas Nuttall presented me with some that had been shot in the neighbourhood of that city, as did Mr. John Bethune and Mr. Rodman of New Bedford.

As we advanced eastward in the month of May, we saw more and more of them, and while at Eastport in Maine my son JOHN shot several out of flocks of sixty or more. At one time a flock consisting of more than a hundred was seen in the Bay of Fundy. They were exceedingly shy, and the gunners of Eastport, who knew them under the name of Sea Geese, spoke of them as very curious birds.

They procure their food principally upon the water, on which they alight like Ducks, float as light as Gulls, and move about in search of food with much nimbleness. The sight of a bank of floating sea-weeds or garbage of any kind induces them at once to alight upon it, when they walk about as unconcernedly as if on land. Their notes, which resemble the syllables *tweet, tweet, tweet,* are sharp and clear, and in their flight they resemble our common American Snipe. At the approach of an enemy, they immediately close their ranks, until they almost touch each other, when great havoc is made among them; but if not immediately shot at, they rise all at once and fly swiftly off, emitting their shrill cries, and remove to a great distance. These Phalaropes congregate in this manner for the purpose of moving northwards to their breeding-grounds, although some remain and breed as far south as Mount Desert Island. I have met with them in equally large flocks at a distance of more than a hundred miles from the shores.

They were feeding on great beds of floating seaweeds, and in several instances some Red Phalaropes were seen in their company.

Whilst in Labrador, I observed that the Hyperborean Phalarope occurred only in small parties of a few pairs, and that instead of keeping at sea or on the salt-water bays, they were always in the immediate vicinity of small fresh-water lakes or ponds, near which they bred. The nest was a hollow scooped out among the herbage, and covered with a few bits of dried grass and moss. The eggs are always four; they measure at an average an inch and three-sixteenths in length, seven-eighths in their greatest diameter, are rather pointed at the smaller end, and are more uniform in their size and markings than those of most water-birds. The ground colour is deep dull buff, and is irregularly marked with large and small blotches of dark reddish-brown, which are larger and more abundant on the crown. The birds shewed great anxiety for the safety of their eggs, limping before us, or running with extended wings, and emitting a feeble melancholy note, as if about to expire. When we approached them, they resumed all their natural alacrity, piped in their usual manner, flew off and alighted on the water. Captain EMERY and myself followed some nearly an hour, assisted by a pointer dog, in the hope of tiring them out; but they seemed to laugh at our efforts, and when Dash was quite close to them, they would suddenly fly off in another direction, and with great swiftness, always leading us farther from their

nests. The young leave the nest shortly after they are hatched, and run after their parents over the moss, and along the edges of the small ponds; but I saw none on the water that were not fully fledged. Both young and old had departed by the beginning of August.

The Hyperborean Phalarope seems to undergo an almost continual moult, and is in full plumage only about six weeks each year. The young when fledged are nearly grey above, and all white beneath. Some of them breed before they have acquired what may be considered the perfect plumage; and the very old birds become greyish also at the approach of winter, the red of the throat and other parts becoming bright again in the beginning of May, or sometimes in April. The scapulars of the young are conspicuously shorter than the longest primaries, but after the first moult are equal in length. The upper wing-coverts are then also short.

I have never met with this species in any part of the interior, although I have procured the Red Phalarope and Wilson's Phalarope in many parts to the west of the Alleghany Mountains, at a distance of more than a thousand miles from the sea-coast.

PHALAROPUS HYPERBOREUS, Bonap. Syn., p. 342.

HYPERBOREAN PHALAROPE, Nutt. Man., vol. ii. p. 239.

HYPERBOREAN PHALAROPE, *Phalaropus hyperboreus*, Aud. Orn. Biog., vol. iii. p. 118; vol. v. p. 595.

Male, 6, 13½; wing, 5¾.

Rarely seen south of New York. Plentiful at some periods from Massachusetts to Maine. Abundant in the Bay of Fundy during spring and autumn. Breeds in Labrador and along all the Arctic coast. Migratory.

Adult Male in summer.

Bill long, very slender, flexible, nearly cylindrical, but towards the point tapering. Upper mandible with the dorsal line straight, excepting at the end, where it is a little curved, the ridge broad and depressed, the sides slightly sloping, the edges rounded, and inflected towards the narrow, slightly curved, acute tip. Nasal groove long, linear; nostrils basal, linear, pervious. Lower mandible with the angle very long and narrow, the sides convex, the tip narrowed.

Head small, with the fore part high and rounded. Eyes small. Neck rather long and slender. Body slender. Wings long. Feet of moderate length, slender; tibia bare a considerable way above the joint; tarsus much compressed, narrowed before, very thin behind, covered anteriorly with numerous scutella; toes slender; first extremely small, free, with a slight membrane beneath; second slightly shorter than fourth, third considerably longer; toes all scutellate above, margined on both sides with lobed and

pectinated membranes, which are united at the base, so as to render the foot half webbed ; the outer web much longer than the inner. Claws very small, compressed, arched, that of the middle toe with a recurved sharp edge.

Plumage soft and blended. Feathers of the back, and especially the scapulars, elongated. Wings long and pointed ; primary quills tapering, but rounded, the first longest, the second scarcely shorter, the rest rapidly graduated ; secondary quills rather short and narrow, the inner tapering and elongated so as nearly to equal the longest primaries when the wing is closed. Tail rather short, much rounded, of twelve feathers.

Bill black. Iris dark brown. Feet bluish-grey ; claws black. The general colour of the upper parts is greyish-black, the head lighter and more tinged with grey, the scapulars and some of the feathers of the back edged with yellowish-red, of which colour also are the sides of the head and neck ; throat and sides of the upper part of the neck white. Wing-coverts and quills brownish-black, tinged with grey, the shafts of the quills, the margins and tips of the secondaries, and a broad bar on the tips of the secondary coverts, white. Tail light grey, the feathers margined with white, the two middle ones dark brownish-grey, the lateral upper tail-coverts white, barred with dusky. The breast and abdomen white.

Length to end of tail 6 inches, to end of claws $6\frac{1}{4}$, to end of wing $5\frac{3}{4}$; extent of wings $13\frac{1}{2}$; wing from flexure $4\frac{1}{2}$; tail $2\frac{1}{4}$; bill along the back $\frac{11}{12}$, along the edge of lower mandible $\frac{1}{12}$; tarsus $\frac{10}{12}$, middle toe $\frac{10}{12}$, its claw $\frac{3}{12}$.

Adult Female.

The female is similar to the male, but the red markings are not so deep in tint.

Young fully fledged.

The young bird has the markings similarly disposed, but the upper parts are in general of a dull dark grey, the red of the neck much fainter, and that of the scapulars much paler, and inclining to greyish-yellow.

The mouth is extremely narrow, its breadth being only $2\frac{1}{2}$ twelfths ; the palate straight, with two longitudinal ridges, and three anterior series of papillæ ; the upper mandible concave, with a median prominent line, the lower more deeply concave ; the posterior apertures of the nares linear. The tongue $10\frac{1}{2}$ twelfths long, emarginate and papillate at the base, immediately after contracted, extremely slender, as high as broad, grooved above, tapering to a point, and horny on the greater part of its extent. Œsophagus, *a b c*, $3\frac{1}{2}$ inches long, its width 2 twelfths ; proventriculus, *b c*, 4 twelfths in breadth. Liver very large, the right lobe $1\frac{1}{2}$ inches long, the left 10 twelfths. Stomach, *e d e*, roundish, oblique, of moderate size, 8 twelfths long, 7 twelfths broad ; the lateral muscles large and distinct, the lower prominent and thick ; the epithelium of moderate thickness, dense, with

Wilsons Phalaropel

1. Male 2. Female.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

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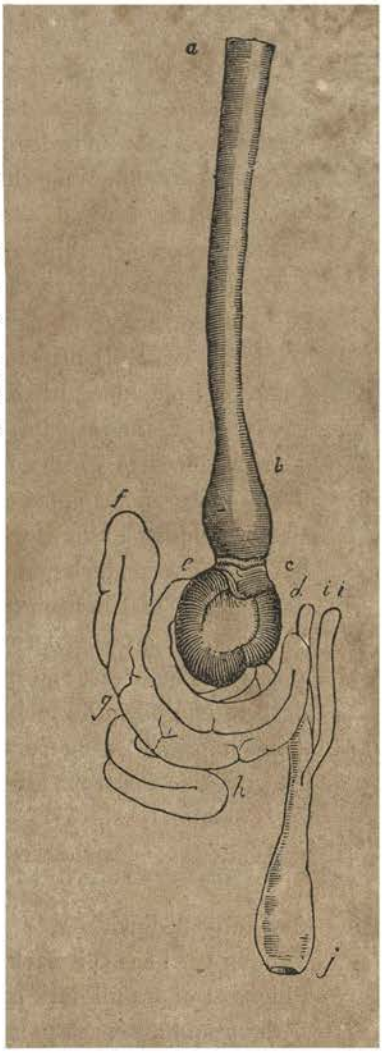
numerous longitudinal rugæ. Contents of stomach small crustacea. Intestine, *e f g h i j*, of moderate length and width, the former 11¼ inches, the latter 3 twelfths, diminishing to 1½ twelfths; cœca, *i i*, 10 twelfths, ¼ twelfth in width for 1¼ inches, afterwards 1 twelfth, their distance from the extremity 1¼ inches; cloaca, *j*, ovate, 5 twelfths in width. Trachea 2 inches 7 twelfths long, much flattened, 1½ twelfths in width; the rings 90, cartilaginous. Bronchi wide, of about 15 half rings. Lateral muscles rather strong; a single pair of inferior laryngeal. Female.



WILSON'S PHALAROPE.

LOBIPES WILSONII, *Sabine.*

PLATE CCCLXI.—MALE AND FEMALE.

The habits of this beautiful species are little known, for so irregularly does it perform its migrations, and so rarely does it settle for any length of time in any part of the United States, that at present few opportunities of studying them occur. Although I have found individuals in various places

along our eastern coast, from Boston to New Jersey, as well as in Kentucky and other portions of the Union, I have not seen its nest, nor even its eggs. Mr. DRUMMOND, whose zeal as a student of nature must be known to every one devoted to natural history, had the good fortune to find its nest in the course of his rambles among the Rocky Mountains, but he has given no information respecting its habits. A person who showed me the skins of two specimens procured in July near Cape May in New Jersey, assured me that he shot them near their nests, and that they had four eggs. While I was in the same neighbourhood, in the month of June, 1829, a fisherman gunner, with whom I was at the time residing at Great Egg Harbour, brought me a pair which he had just killed. He represented them as very gentle and easily approached, and said that on going towards them they affected to be lame, and opened their wings as if to induce him to run after them; instead of doing which, however, he immediately fired and killed them both. Having put away the birds in a safe place, he and I took to his boat and went to the island where he had found them. He showed me the spot on which they had been shot; but although we searched most diligently for the nest, we could not find it. On examining the birds when we returned, I saw that the female must have been sitting. About the same period my son procured two specimens of this Phalarope out of a flock of five, on the rocks at the rapids of the Ohio below Louisville. Late in the summer of 1824 I shot three of them near Buffalo creek on Lake Erie. My generous friend, EDWARD HARRIS, Esq., presented me, at New York, with a young bird in autumnal plumage, from which I made the figure in the plate; and another, in a most emaciated state, was given me at Boston, in the winter, by my young friend JOHN BETHUNE, Esq.

Those which I procured near Lake Erie were engaged in feeding around the borders and in the shallows of a pond of small extent. When I first observed them at some distance, I thought they were Yellow-shanks (*Totanus flavipes*), so much did their motions resemble those of that species. Like it, this Phalarope wades in the water up to its body, picks for food right and left, turns about, and performs all its motions with vivacity and elegance. They kept closer together than the Yellow-shanks usually do, but, like them, they would for a few moments raise their wings as if apprehensive of getting into too deep water and being obliged to fly. They preferred flying to swimming on such occasions, although from the general character of the tribe one might expect otherwise. After watching them about a quarter of an hour, during which time they did not utter a single note, I fired at them when they were all close together, and killed the whole. On opening them I found their stomachs to contain small worms and fragments of very delicate shells. The birds seen at the Falls of the

Ohio flew in the manner of the Common Snipe, proceeding at first in an undulating or zigzag line, but more steadily after reaching a certain elevation, when they came pretty close together, wheeled a few times, and alighted again near the same shallow pools.

Dr. RICHARDSON, who found this species breeding on the Saskatchewan, says "it lays two or three eggs among the grass on the margins of small lakes: they are very obtuse at one end, taper much at the other, and have a colour intermediate between yellowish-grey and cream-yellow, interspersed with small roundish spots and a few larger blotches of umber-brown, more crowded at the obtuse end. The eggs measure sixteen lines and a half in length and eleven across."

I observed scarcely any difference in the colouring of the sexes, the female being merely larger than the male.

GREY PHALAROPE, *Phalaropus lobatus*, Wils. Amer. Orn., vol. ix. p. 72.

PHALAROPUS WILSONII, Bonap. Syn., p. 342.

WILSON'S PHALAROPE, *Phalaropus Wilsonii*, Bonap. Amer. Orn., vol. iv. p. 59.

PHALAROPUS WILSONII, *Wilson's Phalarope*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 405.

AMERICAN PHALAROPE, Nutt. Man., vol. ii. p. 245.

WILSON'S PHALAROPE, *Phalaropus Wilsonii*, Aud. Orn. Biog., vol. iii. p. 400.

Adult, 10, 17½.

Procured in Kentucky, New Jersey, and Boston. Breeds abundantly on the Rocky Mountains. Saskatchewan river. Winters in Mexico.

Adult Male.

Bill long, very slender, flexible, flattened towards the end. Upper mandible with the dorsal line straight, the ridge flattened, the sides at the base sloping, but towards the end nearly horizontal, the edges obtuse, the tip narrow. Nasal groove linear, long; nostrils basal, linear, pervious. Lower mandible with the angle very long and extremely narrow, the sides slightly convex, the tip narrowed.

Head small, with the fore part high and rounded; eyes of moderate size, neck rather long and slender. Body slender. Feet rather long, slender; tibia bare a considerable way above the joint; tarsus extremely compressed, narrowed before, very thin behind, covered anteriorly with numerous scutella, posteriorly with two series of scutella meeting with a sharp edge; toes slender, first very small, free, with a slight membrane beneath, second slightly shorter than fourth, third considerably longer; all scutellate above, margined on both sides with narrow, slightly lobed, crenate membranes, which are united at the base so as to form short webs, of which the outer is longer. Claws very small, compressed, arched, that of the middle toe with the inner edge sharp.

Plumage soft and blended. Feathers of the back and wings distinct. Wings long and pointed, primary quills tapering but rounded, the first longest, the second scarcely shorter, the rest rapidly graduated; secondary quills rather short, broad, obliquely rounded, with a small tip, the inner tapering and elongated, so as nearly to equal the longest primaries when the wing is closed. Tail rather short, nearly even, but with the two middle feathers longer, of twelve rounded feathers, of which the outer are incurved.

Bill black. Iris brown. Feet bluish-grey, claws black. The general colour of the upper parts is brownish-grey, the hind neck and upper tail-coverts greyish-white, the top of the head ash-grey. A white line over the eye; a band of black along the lore, under the eye, and down the side of the neck, on which it becomes broader and changes into chestnut-brown, when it proceeds along the scapulars of a brownish-red colour; another brownish-red band across the wing and including part of the inner secondaries. Quills greyish-brown, the outer primaries and their coverts darker. Tail-feathers pale brownish-grey on the outer, white more or less mottled on the inner webs. Throat and cheeks white; fore-neck orange-brown, fading below, and extending paler along the sides of the body; breast, abdomen and lower wing-coverts white; lower surface of wings pale-grey, of tail white.

Length to end of tail 10 inches, to end of claws 11; extent of wings 17½; wing from flexure $7\frac{4}{12}$; tail $2\frac{2}{12}$; bill along the back $1\frac{7}{12}$, along the edge of lower mandible $1\frac{8}{12}$; bare part of tibia $\frac{2}{4}$; tarsus $1\frac{1}{4}$; middle toe $1\frac{2}{12}$, its claw $\frac{2}{12}$. Weight 2½ oz.

The female, which is somewhat larger, is in colour precisely similar to the male. Weight 3 oz.

Young in autumn.

The young bird after the first moult has the bill brownish-black, the iris brown, the feet greenish-yellow, the claws black. The upper parts are variegated with brownish-black and light greenish-yellow, the central part of each feather being of the former colour; primary quills brownish-black; tail-feathers as in the adult. The lower parts are white.

Spotted Sandpiper.

Drawn from Nature by J.J.Audubon,FRSFLS. 1. Male. 2. Female. Lith.Printed & Col.d by J.T.Bowen. Philad.

Genus IV.—TOTANUS, *Bechst.* TATLER.

Bill much longer than the head, very slender, sub-cylindrical, straight, flexible, compressed at the base, the point rather depressed and obtuse; upper mandible with the dorsal line straight, the ridge convex, as are the sides, the edges thick, the tip slightly deflected; lower mandible with the angle very long and narrow, the dorsal line straight, the sides convex, with a slight groove in their basal half, the edges grooved longitudinally, as are those of the upper, the tip narrow. Nostrils basal, linear. Head of moderate size, oblong; neck rather long and slender; body slender. Feet very long and slender; tibia bare for half its length; tarsus compressed, scutellate before and behind; hind toe very small, anterior of moderate length, connected by webs at the base, all scutellate above. Claws small, slightly arched, rather obtuse. Plumage soft and blended; wings long, narrow, pointed; first quill longest, inner secondaries long; tail short, of twelve rounded feathers.

SPOTTED SANDPIPER, OR TATLER.

Totanus macularius, *Wils.*

PLATE CCCXLII.—Male and Female.

In the course of my last journey in search of information respecting the birds which at one season or other are found within the limits of the United States, I observed so vast a number of them in Texas, that I almost concluded that more than two-thirds of our species occur there. Among them I observed the beautiful bird now before you.

The Spotted Sandpiper has a wonderfully extensive range, for I have met with it not only in most parts of the United States, but also on the shores of Labrador, where, on the 17th of June, 1833, I found it breeding. On the

29th of July, the young were fully fledged, and scampering over the rocks about us, amid the putrid and drying cod-fish. In that country it breeds later by three months than in Texas; for on the head waters of Buffalo Bayou, about sixty miles from the margin of the Mexican Gulf, I saw broods already well grown on the 5th of May, 1837. On the same day of the same month in 1832, a similar occurrence happened on an island near Indian Key, on the south-east coast of Florida. In Newfoundland, on the other hand, the young were just fully fledged on the 11th of August, 1833. It appears strange that none were observed by Dr. RICHARDSON on the shores of Hudson's Bay, or in the interior of that country. They are quite abundant along the margins of the Mississippi, the Ohio, and their tributaries, where they remain until driven off by the cold, and return about the beginning of April, at which period the Purple Martin also makes its appearance. In our Middle Districts, they arrive a fortnight later. On the Island of Jestico, in the Gulf of St. Lawrence, about twenty pairs had nests and eggs on the 11th of June; and the air was filled with the pleasing sound of their voices while we remained there. The nests were placed among the tall slender grass that covered the southern part of the island. They were more bulky and more neatly constructed than any that I have examined southward of the Gulf of St. Lawrence; and yet they were not to be compared with those found in Labrador, where, in every instance, they were concealed under ledges of rocks extending for several feet over them, so that I probably should not have observed them, had not the birds flown off as I was passing. These nests were made of dry moss, raised to the height of from six to nine inches, and well finished within with slender grasses and feathers of the Eider Duck. As usual, however, the eggs were always four, when the bird was sitting. They measure an inch and a quarter in length, by an inch at their thickest part, so that they have a shortish and bulky appearance, though they run almost to a point. They are smooth, and handsomely marked with blotches of deep brown and others of a lighter tint, on a greyish-yellow ground, the spots being larger and closer towards the rounded end. Both sexes incubate, and remain with their brood until the time of their departure.

My learned friend THOMAS NUTTALL has described the manners of this species as observed in the neighbourhood of Boston, with so much truth and accuracy, that I cannot do better than present you with his account of it, the more especially, that in so doing, I have an opportunity of expressing the high opinion I entertain of his talents and varied accomplishments. "The Peet Weet is one of the most familiar and common of all the New England marsh-birds, arriving along our river shores and low meadows about the beginning of May, from their mild or tropical winter quarters in Mexico. As soon as it arrives on the coast, small roving flocks are seen, at various

times of the day, coursing rapidly along the borders of our tide-water streams, flying swiftly and rather low, in circular sweeps along the meanders of the rock or river, and occasionally crossing from side to side, in rather a sportive and cheerful mien, than as the needy foragers they appear at the close of the autumn. While flying out in these wide circuits, agitated by superior feelings to those of hunger and necessity, we hear the shores re-echo the shrill and rapid whistle of 'weet, 'weet, 'weet, 'weet, and usually closing the note with something like a warble, as they approach their companions on the strand. The cry then varies to 'peet, 'weet, 'weet, 'weet, beginning high and gradually declining into a somewhat plaintive tone. As the season advances, our little lively marine wanderers often trace the streams some distance into the interior, resting usually in fresh meadows among the grass, sometimes even near the house, and I have seen their eggs laid in a strawberry bed; and the young and old, pleased with their allowed protection, familiarly fed, and probed the margin of the adjoining duck-pond, for their usual fare of worms and insects. They have the very frequent habit of balancing or wagging the tail, in which even the young join as soon as they are fledged. From the middle to the close of May, the pairs, seceding from their companions, seek out a place for their nest, which is always in a dry open field of grass or grain, sometimes in the seclusion and shade of a field of maize, but most commonly in a dry pasture, contiguous to the sea-shore; and in some of the solitary and small sea islands, several pairs sometimes nestle near to each other, in the immediate vicinity of the noisy nurseries of the quailing Terns. On being flushed from her eggs, the female goes off without uttering any complaint; but when surprised with her young, she practises all the arts of dissimulation common to many other birds, fluttering in the path, as if badly wounded, and generally proceeds in this way so far as to deceive a dog, and cause it to overlook the brood, for whose protection these instinctive arts are practised; nor are the young without their artful instinct, for on hearing the reiterated cries of their parents, they scatter about, and squatting still in the withered grass, almost exactly their colour, it is with careful search very difficult to discover them, so that in nine times out of ten, they would be overlooked, and only be endangered by the tread, which they would endure sooner than betray their cautious retreat.

"At a later period the shores and marshes resound with the quick, clear, and oft-repeated note of peet weet, peet weet, followed up by a plaintive call on the young, of peet, peet, peet? peet? If this is not answered by the scattered brood, a reiterated 'weet, 'weet, 'weet, 'wait, 'wait, is heard, the voice dropping on the final syllables. The whole marsh and the shores at times echo to this loud, lively, and solicitous call of the affectionate parents

for their brood. The cry, of course, is most frequent toward evening, when the little family, separated by the necessity of scattering themselves over the ground in quest of food, are again desirous of reassembling to roost. The young, as soon as hatched, run about the grass, and utter from the first a weak plaintive peep, at length more frequent and audible; and an imitation of the whistle of peet weet, is almost sure to meet with an answer from the sympathizing broods, which now throng our marshes. When the note appears to be answered, the parents hurry, and repeat their call with great quickness. Young and old, previous to their departure, frequent the sea-shores, like most of the species, but never associate with other kinds, nor become gregarious, living always in families till the time of their departure, which usually occurs about the middle of October."

My esteemed friend THOMAS MACCULLOCH of Pictou, Nova Scotia, having transmitted to me a curious account of the attachment of one of these birds to her eggs, I here insert it with pleasure. "Being on an excursion to the Hardwood Heights, which rise to the west of Pictou, my attention was attracted by the warble of a little bird, which appeared to me entirely new, and which proceeded from a small thicket a short way off. Whilst crossing an intervening meadow, I accidentally raised a Spotted Sandpiper from its nest, and having marked the spot I hastened forwards; but the shyness of the object of my pursuit rendered all my efforts unavailing, and returning to the nest which I had just left, I expected to find it still unoccupied; but the Sandpiper had again resumed her place, and left it with great reluctance, on my near approach. The first contained four eggs, which I determined to remove on my return at night, and for the purpose of preventing the bird sitting again upon them, I placed a number of stones in a slanting position over the nest, and so close that it was impossible for the bird to get into it. On my return in the evening, however, I observed the little creature rise from beside the stones apparently in greater trepidation than ever, and more anxious to draw me away by the exhibition of all those little arts which they practise for this purpose. On examining the spot I was very much surprised to find that the poor thing had not only hollowed out a new nest, but had actually succeeded in abstracting two eggs from the other nest. How the bird had contrived to remove the eggs I cannot conceive, as the stones remained unaltered. This attachment to its nest and eggs appeared to me more singular as the bird had just commenced incubation, the eggs exhibiting very little appearance of the young."

In addition to the observations of THOMAS NUTTALL, I must inform you that this species is often observed to alight on the branches of trees hanging over water-courses, on which they walk deliberately, and with their usual delicate elegance of gait, and balancing of both body and tail. They are

also wont to alight more frequently on the rails and stakes of fences, or on walls. I have seen them on the tops of hay-stacks, where they seemed to be engaged in pursuing insects. On several occasions I have found their nests in orchards of both peach and apple trees, at a considerable distance from water, the use of which, indeed, they do not appear to require much during the progress of incubation, or the first weeks after hatching their young, when I have seen them rambling in search of food over large open fields of sweet potatoes and other vegetables, in the neighbourhood of some of our cities.

While these birds are flying, in the love season, the points of their wings are considerably bent down, and they propel themselves by strong and decided beats, supporting themselves afterwards by slow tremulous motions of their pinions, to the distance of some yards, when they repeat the strong beats, and thus continue until they realight, uttering all the while their well-known notes, so accurately described by my friend NUTTALL.

In the autumnal months, along the shores of La Belle Riviere, I have often with much delight watched the movements of these birds, when I have been surprised to see the pertinacity with which, after the first frosts, they would pursue their migration down the stream, for on attempting to make them fly the other way, they would rise, sometimes to the height of twenty yards, and flying over head or along the river, proceed downwards, although at any other time they would exhibit no such propensity. They run along the shores, and through shallow water, with great nimbleness; and while courting, the male struts before the female, with depressed wings, spreading out his tail and trailing it along the ground, in the manner of the Migratory and Rufous Thrushes.

The young become very fat in autumn, and afford delicious eating, for as they feed much on worms, aquatic insects, and small mollusca, their flesh seldom has a fishy taste. The male and female are alike, and almost equal in size. The young differ from the old until the approach of winter, when, with the exception of their being rather smaller, no difference can be perceived.

This species occurs also in Europe, and a few individuals have been shot in England.

SPOTTED SANDPIPER, *Tringa macularia*, Wils. Amer. Orn., vol. vii. p. 60.
TOTANUS MACULARIUS, Bonap. Syn., p. 325.
SPOTTED TATLER OR PEET-WEET, Nutt. Man., vol. ii. p. 162.
SPOTTED SANDPIPER, *Totanus macularius*, Aud. Orn. Biog., vol. iv. p. 81.

Male, 8, 13¾.

Breeds from Texas along the shores to Maine, the islands of the Gulf of

St. Lawrence, and Labrador. Inland all over the country. Very common. Resident in the Southern States. Columbia river.

Adult Male.

Bill a little longer than the head, very slender, sub-cylindrical, straight, flexible, compressed, the point rather obtuse. Upper mandible with the dorsal line straight, the ridge convex, broader at the base, slightly depressed towards the end, the sides sloping, towards the end convex, the edges sharp, the tip slightly deflected. Nasal groove extending over three-fourths of the length of the bill; nostrils basal, linear, pervious. Lower mandible with the angle very long and extremely narrow, the dorsal line straight, the sides grooved at the base, convex towards the end.

Head small, oblong. Eyes rather large. Neck of moderate length. Body rather slender. Feet rather long and slender; tibia bare nearly half its length, scutellate before and behind; tarsus also scutellate before and behind; hind toe very small and elevated; fore toes rather long, very slender, connected by basal webs, of which the outer is much larger; second toe considerably shorter than fourth; all flat beneath, and marginate. Claws small, slightly arched, much compressed, rather sharp, that of the middle toe much larger, with the inner edge considerably dilated.

Plumage very soft, blended, on the fore part of the head very short. Wings long, narrow, pointed; primaries rather narrow and tapering, first longest, the rest rapidly graduated; secondaries short, broad, incurved, obliquely rounded, the inner elongated and tapering. Tail of moderate length, much rounded, of twelve rounded feathers.

Bill greenish-olive above, yellow beneath, the point of both mandibles black. Eye hazel. Feet pale yellowish flesh-colour, claws black. All the upper parts shining deep brownish-olive, the head longitudinally streaked, the back transversely barred with black. A line from the bill to the eye and beyond it white, another beneath it dusky. All the lower parts white, marked with numerous brownish-black spots, smaller on the throat, largest and roundish on the breast and sides. Axillary feathers pure white, lower wing-coverts white, mottled with dusky. Quills brownish-black, glossed with green, the elongated inner secondaries like the back; the primaries slightly tipped with white, the secondaries, excepting the inner, more distinctly so, the white forming on them a conspicuous band. Four middle tail-feathers like the back, with a band of black at the end, the tip white; the next pair on each side similar, with the white tip larger; the next barred with dusky on the outer web; the lateral feather with the outer web white, similarly barred.

Length to end of tail 8 inches, to end of wings 7½, to end of claws 8½;

Nº 69.

Pl. 343.

Solitary Sandpiper

1 Male 2 Female

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Lith^d Printed & Col^d by J. T. Bowen, Phila^d

extent of wings 13¾; wing from flexure 4⅞; tail 2; bill along the ridge 1⅛; tarsus $\frac{10\frac{1}{2}}{12}$; hind toe and claw $\frac{11}{12}$; middle toe and claw $1\frac{1}{12}$.

Female.

There is hardly any difference between the sexes.

The young in winter have the bill black at the end, dusky olive above, yellowish beneath; the feet yellowish flesh-colour. The lower parts are brownish-white, without spots; the upper of the same brownish-olive as in the adult, but the head and hind neck destitute of streaks, and the rest with narrower and more numerous dusky bars.

The tongue is 10 twelfths long, slender, tapering to a point, grooved above, sagittate and papillate at the base. The roof of the mouth with a single row of papillæ, posteriorly divided into two series. Œsophagus 3 inches and 8 twelfths long, its diameter 2 twelfths, and nearly uniform. Proventriculus ½ inch long, 3½ twelfths in diameter. Stomach elliptical, 8½ twelfths long, 6½ twelfths in breadth; its lateral muscles strong, the tendinous spaces oblong; the cuticular lining with large longitudinal rugæ, and of a deep red colour. The contents of the stomach in this individual were remains of marine insects, and quartz sand. Intestine 10 inches long, its diameter varying from 1½ twelfths to 1 twelfth; it enlarges near the rectum to 2 twelfths. Rectum 1 inch and 1 twelfth; cœca 1 inch and 1 twelfth, their diameter ¾ of a twelfth.

The trachea is 2 inches and 8 twelfths long, its diameter from 2 twelfths to 1 twelfth; its rings 105, feeble and unossified. The lateral muscles extremely feeble; sterno-tracheals moderate; a single pair of inferior laryngeal muscles.

SOLITARY SANDPIPER, OR TATLER.

TOTANUS SOLITARIUS, *Wils.*

PLATE CCCXLIII.—MALE AND FEMALE.

The only nest of this bird that I ever met with was placed in an elevated part of the woods near Bayou Sara, on the margin of a small pond scarcely ten yards broad, overgrown with low bushes, and cumbered with fallen branches of trees. It was formed of grass and withered leaves, arranged

without much care, and contained three eggs. Both birds were greatly disconcerted, ran round me, and frequently alighted on the twigs and branches with all the nimbleness of land birds, constantly throwing their heads forward and vibrating their body and tail in the manner of the Louisiana Water Thrush. The eggs measured one inch one eighth and a half in length, seven and a half eighths in breadth; the colour was greenish-yellow, with spots and patches of umber, more abundant around the crown, where the larger marks formed a conspicuous circle. I carried one of the eggs home, and, on returning a few days after to the spot, found one of the birds sitting, which proved to me that the great anxiety shewn at my first visit was chiefly because the female was about to lay her last egg. The male was absent, nor did it shew itself during my stay. About a fortnight after I found the wings of one of the birds near the place; the eggs also were gone; and I concluded that some quadruped, probably a racoon, had committed the havoc. No bird of this species was in the neighbourhood.

In the Fauna Boreali-Americana, Dr. RICHARDSON says that in high northern latitudes these birds deposit their eggs on the bare sand, which is another proof in addition to the many already given, that great differences as to the mode of nestling may exist in the same species in different parts of the country. Indeed, almost all the habits of this curious bird differ according to the locality. In the Southern States, they are particularly fond of low flat lands among deep woods and cane brakes, and rarely approach ponds of any great extent, but prefer those which are small and most secluded. In the Middle Districts I have found them along the Lehigh, and in watery places both on low and on elevated ground. In the State of Maine they frequented similar localities. In the prairies of Indiana I have seen them in early spring, during rainy weather, wading and running through the water, on the very foot-path before me, for eight or ten yards at a time. When flushed, they would fly in a semicircle close over the ground, and re-alight at the distance of a hundred yards or so on the same path. Not one of the species was observed in Labrador or Newfoundland by my party; and my friend THOMAS MACCULLOCH informs me that only a few single birds are seen near Pictou, and that in autumn, when they keep in marshy grounds in the neighbourhood of the sea.

The flight of the Solitary Sandpiper is swift and protracted. It moves in a zigzag manner, and at times makes its way through the woods with surprising ease, seldom leaving the starting-place without uttering a clear and pleasant tweet. In re-alighting it pitches downwards like the Common Snipe. On the ground they are very active, and at times so indifferent to the approach of man, that they will merely fly across or around a small pond for a considerable time, and, if shot at and not touched, they will be sure to

be found in the same place a few hours after. Its alighting on trees has often appeared to me as singular as that of Bartram's Snipe and the Semipalmated species. The Solitary Snipe is, however, the most expert at catching insects on the wing, especially the smaller kinds of dragon-flies, which it chases from the sticks on which they alight, and generally seizes before they have flown across the little ponds, which are the favourite places of resort of this species. I have found their stomachs filled with aquatic insects, caterpillars of various kinds, and black spiders of considerable size.

I consider this bird to be a constant resident in the United States, although it ranges over a great space in summer and winter. Scarcely any difference is observable in the sexes; and I am of opinion that the young acquire their full plumage the first spring.

SOLITARY SANDPIPER, *Tringa solitaria*, Wils. Amer. Orn., vol. vii. p. 53.

TOTANUS CHLOROPYGIUS, Bonap. Syn., p. 325.

TOTANUS CHLOROPYGIUS, *Green-rump Tatler*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 393.

GREEN-RUMP TATLER, *Totanus chloropygius*, Aud. Orn. Biog., vol. iii. p. 576; vol. v. p 583.

Male, 8½, 16½.

Distributed from Texas over the United States, breeding in deep woody situations, in the Fur Countries on the bare sand. Columbia river. Partially migratory.

Adult male.

Bill a little longer than the head, very slender, sub-cylindrical, straight, flexible, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line straight, the ridge convex, broader at the base, slightly depressed towards the end, the sides sloping, towards the end convex, the edges soft and obtuse, the tip very slightly deflected. Nasal groove long and narrow, extending to a little beyond the middle of the bill; nostrils basal, linear, pervious. Lower mandible with the angle very long and extremely narrow, the dorsal line straight, the sides convex, with a slight groove in their basal half.

Head small, oblong, anteriorly narrowed. Eyes large. Neck rather long and slender. Body slender. Feet long and slender; tibia bare nearly half its length, scutellate before and behind; tarsus also scutellate before and behind; hind toe very small and elevated; fore toes rather long, very slender, connected at the base by webs, of which the outer is much larger; second or inner toe considerably shorter than fourth, third longest; all scutellate above, flat and marginate beneath. Claws small, slightly arched, much compressed, rather obtuse, that of middle toe much larger, with the inner edge enlarged.

Plumage very soft, blended, on the fore part of the head very short. Wings long, narrow, pointed; primaries rather narrow and tapering, first and second equal, the rest rapidly graduated; secondaries short, broad, incurved, obliquely rounded, the inner elongated and tapering. Tail rather short, slightly rounded, of twelve rounded feathers.

Bill greenish-black. Iris brown; edges of eyelids dark grey. Feet greenish-grey, claws brownish-black. Upper part of the head, lores, cheeks, hind neck and sides of the neck deep brownish-grey, the edges of the feathers brownish-white; a dull white line from the bill to the eye; upper part of throat greyish-white; fore-neck of the same colour, streaked with brownish-grey, as are the sides; the rest of the lower parts greyish-white. The general colour of the back and scapulars is deep greenish-brown, the feathers edged with a few small spots of white and dusky, those on the inner secondaries more numerous. Wing-coverts similar, excepting those along the edge of the wing, which, with the alula and primary coverts, are deep brownish-black; primary quills brownish-black, secondaries greyish-brown; lower wing-coverts mottled with brownish-black and white, the axillar feathers barred with greyish-white and dusky, as are the upper tail-coverts and the tail-feathers, of which the two middle are merely spotted with white on the edges.

Length to end of tail 8½ inches, to end of wings 9, to end of claws 10, extent of wings 16½; wing from flexure 5¼; tail 2; bill along the back $1\frac{2}{12}$, along the edge of lower mandible $1\frac{2}{12}$; tarsus $1\frac{2}{12}$; middle toe $\frac{11}{12}$, its claw $\frac{2}{12}$. Weight 1¾ oz.

Adult Female.

There is no decided difference between the sexes in the colouring, but the female is somewhat larger. From the only instance in which I found this species in the act of depositing its eggs, I conclude that it generally forms its nest on the higher grounds or along the declivities of hills.

Mouth very narrow, 2½ twelfths in width. Tongue 11 twelfths long, channelled above, extremely slender toward the point. Œsophagus 3 inches 2 twelfths long, 2 twelfths wide; proventriculus 3 twelfths in breadth. Stomach roundish, oblique, 9 twelfths by 8 twelfths; its lateral muscles large; epithelium dense and longitudinally rugous. Intestine 13½ inches long; duodenum 2 twelfths in width, the rest 1½ twelfths; cœca 1 inch 2 twelfths long, 1 twelfth wide, and 1¼ inches distant from the extremity; rectum slightly dilated toward the end. Trachea 2¼ inches long, 1½ twelfths in width, much flattened, the rings narrow, unossified, 128. Bronchial half rings about 15. Muscles as in the other species of this family. Male.

Yellow Shanks Snipe

Male. Summer Plumage.

View in South Carolina.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen. Phila.ª

THE YELLOWSHANK TATLER.

TOTANUS FLAVIPES, *Lath.*

PLATE CCCXLIV.—MALE.

The Yellowshank is much more abundant in the interior, or to the westward of the Alleghany Mountains, than along our Atlantic coast, although it is also met with in the whole extent of the latter, from Florida to Maine. It exceeds the Tell-tale Godwit in numbers on the shores of the Ohio, as well as on the margins of the numerous ponds and lakes in the vicinity of the Mississippi, from the mouth of the river just mentioned to New Orleans, and beyond that city southward. In early autumn, when the sand-bars of the Ohio are left uncovered, these active birds are seen upon them in small flocks, formed each apparently of a single family, busily employed in searching for food, and wading in the water up to the feathered part of their legs. When the water is high, they resort to ponds and damp meadows intersected by small rivulets. In the Carolinas and the Floridas they are pretty numerous, in the former betaking themselves to the rice-fields, and in the latter to the wet savannahs. They are equally fond of frequenting the shores of our estuaries that are bordered by salt marshes, on the muddy edges of which they find their food. I have also met with them on the margins of clear streams in the interior of the States, and indeed should hardly be able to mention a district in which the species is not to be seen, from the beginning of September until May, when the greater number retire northward, although some remain and breed, even in our Middle States, as NUTTALL says they are seen in the neighbourhood of Boston in the middle of June. I found a few on the coast of Labrador, but did not succeed in discovering their nests, which was the more surprising as these birds, according to my friend, THOMAS MACCULLOCH, breed in considerable numbers about Pictou. He describes the nest as placed among the grass on the edges of the rivers and large ponds of the interior.

The flight of the Yellowshank is very similar to that of the Tell-tale Godwit. They generally run to some distance before they take to wing, stop as if to discover your intention, vibrate their body backwards and forwards, intimate by their cries the knowledge they have of the nature of the weapon you carry, and, as if convinced that you are bent on mischief, spring up, rise obliquely to some height, emit louder notes, and with continued flappings

pass around you, or remove to some distant place. Their long yellow legs, which are stretched out behind, are quite conspicuous when they are on wing. Should you bring one to the ground wounded, it walks off leisurely, vibrates its body, and emits plaintive cries; and should one fall into the water under similar circumstances, it paddles its way towards the nearest shore with considerable speed. If you approach it, it may immerse its head, but it cannot dive to any depth.

In very dry weather, I have observed this species on the uplands searching for grasshoppers and insects. It has been alleged that when one is wounded, its companions hover around so as to be easily shot; but this I have never observed, for although they are perhaps less shy than the Tell-tales, on such occasions, I never found one of them to remain; they seemed, on the contrary, to be well aware of the danger, and would fly quite out of sight, rising high in the air, and pursuing a direct course, emitting cries at intervals.

Along the shores of the sea, they are now and then seen in company with other species, although they cannot be said actually to associate with them. In autumn they become fat, and by many are considered good eating, although they always have a kind of fishy taste not at all agreeable to my palate. Their food consists of diminutive fishes, shrimps, worms, and aquatic insects.

I have represented one of these birds on the fore ground of a little piece of water a few miles distant from Charleston in South Carolina, on the borders of which, in the company of my kind friend JOHN BACHMAN and others, I have spent many a pleasant hour, while resting after fatiguing rambles in the surrounding woods.

YELLOWSHANKS SNIPE, *Scolopax flavipes*, Wils. Amer. Orn., vol. vii. p. 55.
TOTANUS FLAVIPES, Bonap. Syn., p. 324.
TOTANUS FLAVIPES, *Yellowshanks Tatler*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 390.
YELLOWSHANKS TATLER, Nutt. Man., vol. ii. p. 152.
YELLOWSHANK, *Totanus flavipes*, Aud. Orn. Biog., vol. iii. p. 573; vol. v. p. 586.

Male, $10\frac{3}{4}$, 20.

From Texas to Maine, in autumn and spring. Very abundant at the same season throughout the interior. Breeds in the Fur Countries, up to the highest northern latitudes.

Adult Male in summer.

Bill a little longer than the head, very slender, sub-cylindrical, straight, flexible, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line straight, the ridge convex, broader at the base, slightly depressed towards the end, the sides sloping, towards the

end convex, the edges soft and obtuse, the tip slightly deflected. Nasal groove long and narrow, extending to a little beyond the middle of the bill; nostrils basal, linear, pervious. Lower mandible with the angle very long and extremely narrow, the dorsal line straight, the sides convex, with a slight groove in their basal half.

Head small, oblong, anteriorly narrowed. Eyes large. Neck rather long and slender. Body slender. Feet very long, slender; tibia bare for half its length, scutellate before and behind; tarsus also scutellate before and behind; hind toe very small and elevated; fore toes of moderate length, very slender, connected at the base by webs, of which the outer is much larger; second or inner toe considerably shorter than fourth, third longest; all scutellate above, flat and marginate beneath. Claws small, slightly arched, much compressed, obtuse, that of middle toe much larger, with the inner edge enlarged.

Plumage very soft, blended, on the fore part of the head very short. Wings long, narrow, pointed; primaries narrow and tapering, first longest, second a little shorter, the rest rapidly graduated; secondaries short, broad, incurved, obliquely rounded, the inner elongated and tapering. Tail short, rounded, of twelve rounded feathers.

Bill black. Iris dark brown; edges of eyelids dark grey. Feet bright yellow, claws brownish-black. Upper part of the head, lores, cheeks, neck, and sides of the neck deep brownish-grey, the edges of the feathers greyish-white; a white line from the bill to the eye and over it; upper part of throat white; fore-neck greyish-white, streaked with brownish-grey, as are the sides, the rest of the lower parts white, the lower tail-coverts slightly marked with grey. The general colour of the back and scapulars is olivaceous-brown, tinged with grey, the feathers edged with small dusky and white spots. The wing-coverts and inner secondary quills are similar, the marginal spots on the latter forming bands; primary quills blackish-brown, the shaft of the outer brownish-white, of the rest dark brown, the edges of the inner, and of the middle secondaries white; hind part of back grey, upper tail-coverts white, the larger obscurely barred with grey.

Length to end of tail 10⅝ inches, to end of wings 11$\frac{3}{12}$, to end of claws 13$\frac{3}{12}$, extent of wings 20; wing from flexure 6$\frac{9}{12}$; tail 2½; bill along the back 1$\frac{5}{12}$, along the edge of lower mandible 1$\frac{5}{12}$; bare part of tibia 1$\frac{4}{12}$; tarsus 1$\frac{11}{12}$; middle toe 1$\frac{3}{12}$, its claw $\frac{4}{12}$. Weight 2½ oz.

Two series of papillæ on the anterior part of the roof of the mouth. Tongue 1¼ inches long, emarginate and papillate at the base, as deep as broad, channelled above, tapering to a narrow but obtuse horny point. Œsophagus 4¼ inches long, 3 twelfths in width; proventriculus 3¼ twelfths. Stomach rather small, elliptical, 8 twelfths long, 6 twelfths broad; the lateral muscles rather strong; epithelium dense, rather thin, with numerous longi-

tudinal rugæ, and of a dark red colour. Intestine 18 inches long, its greatest width in the duodenal part 1½ twelfths, the smallest toward the rectum 1 twelfth. Cœca 1 inch 2 twelfths long, 1 twelfth wide, 1⅓ inches distant from the extremity. Cloaca obovate, 5 twelfths in width. Trachea 3 inches 2 twelfths in length, from 2½ twelfths to 1½ twelfths in width; rings 130, extremely narrow, and cartilaginous. Bronchial half rings. Muscles as in the last species.

TELL-TALE GODWIT.—TELL-TALE TATLER.

TOTANUS VOCIFERUS, *Wils.*

PLATE CCCXLV.—MALE AND FEMALE IN WINTER.

It is my opinion that they who have given so much importance to the cry of this bird, as to believe it to be mainly instrumental in ensuring the safety of other species, and in particular of Ducks, have called in the aid of their imagination to increase the interest of what requires no such illustration. A person unacquainted with this Godwit would believe, on reading its history as recorded in books, that the safety of these birds depends on the friendly warning of their long-billed and long-tongued neighbour. And yet it is at no season more noisy or more vigilant than the Kildeer Plover, nor ever half so much so as the Semipalmated species, the reiterated vociferations of which are so annoying. It is true that the Tell-tale is quite loquacious enough; nay, you, reader, and I, may admit that it is a cunning and watchful bird, ever willing to admonish you or me, or any other person whom it may observe advancing towards it with no good intent, that it has all along watched us. But then, when one has observed the habits of this bird for a considerable time, in different situations, and when no other feathered creatures are in sight, he will be convinced that the Tell-tale merely intends by its cries to preserve itself, and not generously to warn others of their danger. So you may safely banish from your mind the apprehension, which the reading of books may have caused, that duck-shooting in the marshes of our Middle Districts, is as hopeless a pursuit as "a wild goose chase."

The Tell-tale Godwit has a great range in the United States, where, in-

Tell-tale Godwit or Snipe.

1 Male 2 Female

View of East Florida

Drawn from Nature by J.J. Audubon FRSFLS.

Lith.ª Printed & Col.ª by J. T. Bowen. Phila.ª

deed, I have found it in almost every district, and at all seasons. It spends the winter along the shores of our estuaries, rivers, and ponds, and in the rice-fields, from Maryland to Mexico. It is abundant then in South Carolina, the Floridas, and along the shores of the Gulf of Mexico, as far as Texas, where I found it in considerable numbers and paired, in the months of April and May, along with the Yellow-shank Snipe, *Totanus flavipes*. It is also met with in spring and autumn over the whole interior of the country, and I have found it quite abundant at those seasons along the entire length of the Mississippi, Ohio, and Missouri rivers, as well as on the Arkansas. They congregate in great numbers in the inland marshes of Florida, and along its rivers, during the winter. I found them near Eastport, in the State of Maine, on the 11th of May, 1833; and on the coast of Labrador, on the 18th of June of the same year. In Newfoundland, on the 11th of August, the young were equal in size to their parents, and being extremely fat, tender, and juicy, afforded excellent eating. In general, however, these birds are thin and have a fishy taste.

In the State of Maine and the province of New Brunswick, the Tell-tale is known by the name of "Humility," which, however, is an appellation that ill accords with its vociferous habits. The Creoles of New Orleans call it "Clou-clou;" and were these syllables rapidly enunciated from two to five times in succession, the sounds would have some resemblance to the usual notes of the species.

When these Godwits arrive in the vicinity of New Orleans about the middle of March, they appear in considerable flocks. They retire, however, in the beginning of May, and return about the first of July, from which time they continue there until the end of autumn, some indeed remaining all winter. It seems, that at the period of their disappearance at New Orleans, they retire to the vast marshes near the sea-shore, and there breed, for I have found them abundant near the passes or mouths of the Mississippi in pairs, on the first of April, when the air is warmer than in the interior. They are said to breed in the marshes along the coast of New Jersey, where, according to Wilson, they arrive early in April, and continue until November. It is a curious fact that the Tell-tale Godwit, as well as some other birds of similar habits, is of very rare occurrence along the shores of Massachusetts and Maine. This, however, seems to be accounted for by the absence there of the large spongy marshes, to which these birds are fond of resorting.

Although found in the vicinity of both salt and fresh water, at all seasons, it usually prefers the latter, and the spots which appear to be best adapted to its nature are ponds of which the water is shallow and the shores muddy, so that they can walk and wade at ease upon them. Wherever such ponds occur, whether in plantations or in the interior of forests, or on extensive

savannahs or prairies, there you will find them actively employed, wading so far into the water as to seem as if they were swimming. If just alighted after ever so short a flight, they hold their wings upright for a considerable time, as if doubtful of not having obtained good footing. Closing their wings, they then move nimbly about the pool, and are seen catching small fishes, insects, worms, or snails, which they do with rapidity and a considerable degree of grace, for their steps are light, and the balancing or vibratory motion of their body, while their head is gently moved backwards and forwards, is very pleasing to the eye.

I have often observed these birds on large logs floating on the Mississippi, and moving gently with the current, and this sometimes in company with the Snowy Heron, *Ardea candidissima*, or the American Crow, *Corvus Americanus*. In such situations, they procure shrimps and the fry of fishes. In autumn, they are extremely prone to betake themselves to the margins of our most sequestered lakes in the interior of Louisiana and Kentucky, where the summer heat has left exposed great flats of soft sandy mud abounding with food suited to their appetite, and where they are much less likely to be disturbed than when on the marshes on the sea-shore, or on the margins of rivers. When they have been some time in the salt-marshes, and have eaten indiscriminately small shell-fish, worms, and fry, they acquire a disagreeable fishy taste, and being at the same time less fat, are scarcely fit for the table. They are social birds, and frequently mingle with other waders, as well as with the smaller ducks, such as the Blue-winged and Green-winged Teals. In the salt-marshes they associate with Curlews, Willets, and other species, with which they live in peace, and on the watchfulness of which they depend quite as much as on their own.

The flight of the Tell-tale Godwit, or "Great Yellow-Shank," as it is generally named in the Western Country, is swift, at times elevated, and, when necessary, sustained. They pass through the air with their necks and legs stretched to their full length, and roam over the places which they select several times before they alight, emitting their well known and easily imitated whistling notes, should any suspicious object be in sight, or if they are anxious to receive the answer of some of their own tribe that have already alighted. At such times, any person who can imitate their cries can easily check their flight, and in a few moments induce them to pass or to alight within shooting distance. This I have not unfrequently succeeded in doing, when they were, at the commencement of my calls, almost half a mile distant. Nay, I have sometimes seen them so gentle, that on my killing several in a flock, the rest would only remove a few yards.

I have always found that the cries of this bird were louder and more frequent during the period of its breeding, when scarcely any birds were in the

vicinity. I therefore conclude that its cries are then more intended to draw you from the spot where its nest is concealed, than for any other purpose, as on such occasions the bird either moves off on foot, or flies away and alights at a short distance from the place where its treasure lies.

When in Labrador, I found these birds breeding, two or three pairs together, in the delightful quiet valleys bounded by rugged hills of considerable height, and watered by limpid brooks. These valleys exhibit, in June and July, the richest verdure, luxuriant grasses of various species growing here and there in separate beds many yards in extent, while the intervening spaces, which are comparatively bare, are of that boggy nature so congenial to the habits of these species. In one of those pleasing retreats my son found a pair of Tell-tales, in the month of June, both of which were procured. The female was found to contain a full-formed egg, and some more of the size of peas. The eggs are four, pyriform, 2¼ inches long, 1⅛ in their greatest breadth, pale greenish-yellow, marked with blotches of umber and pale purplish-grey.

The plumage of this bird has a very different appearance in autumn and winter from that which it presents at the approach of the breeding season. This has led some students of Nature in the United States to suppose that there exist two nearly allied species; but this, I am confident, is not the case. The female is larger than the male, but only in a slight degree.

Dr. RICHARDSON has found this species on the Saskatchewan and Mr. TOWNSEND on the Columbia river.

TELL-TALE GODWIT, or SNIPE, *Scolopax vociferus*, Wils. Amer. Orn., vol. vii. p. 57.
TOTANUS MELANOLEUCUS, Bonap. Syn., p. 324.
TOTANUS VOCIFERUS, *Tell-tale*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 389.
TELL-TALE OR GREATER YELLOWSHANKS, Nutt. Man., vol. ii. p. 148.
TELL-TALE GODWIT, *Totanus melanoleucus*, Aud. Orn. Biog., vol. iv. p. 68.

Male, 14, 24¾. Female, 13¾, 25½.

Abundant during autumn, winter, and spring, from Texas along the Atlantic, and throughout the interior to Labrador. Few breed in the Jerseys; most from Labrador northward.

Adult Male.

Bill much longer than the head, very slender, sub-cylindrical, straight, flexible, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line straight, the ridge convex, broader at the base beyond the nostrils and blended with the sides, which are convex, the edges thick, with a groove running their whole length, the tip slightly deflected. Lower mandible with the angle very long and narrow, the dorsal line straight, the sides convex, with a slight groove in their basal half, the

edges grooved longitudinally, the tip narrow. Nasal groove long and narrow, extending to nearly half the length of the bill; nostrils basal, linear, direct, pervious.

Head of moderate size, oblong, compressed, eyes large. Neck rather long and slender. Body slender. Feet very long and slender; tibia bare for half its length, scutellate before and behind; tarsus compressed, also scutellate before and behind; hind toe very small and elevated; fore toes of moderate length, very slender, connected at the base by webs, of which the outer is larger; second or inner toe considerably shorter than fourth, which is in a similar degree exceeded by the third; all covered with numerous scutella above, flattened beneath, and marginate. Claws small, slightly arched, much compressed, rather obtuse, that of the middle toe much larger, with the inner edge dilated.

Plumage soft and blended, on the fore part of the head very short. Wings long, narrow, pointed; primaries narrow and tapering, first longest, second a little shorter, the rest rapidly graduated; secondaries short, broad, incurved, obliquely rounded, the inner elongated and tapering. Tail short, doubly emarginate in a slight degree, of twelve rounded feathers.

Bill black, tinged with bluish-grey at the base. Iris dark brown. Feet bright yellow, claws brownish-black. Upper part of the head, lores, cheeks, and the neck all round, excepting the throat, streaked with brownish-black, on a white ground, tinged with grey on the head and hind neck; the throat, breast, and abdomen, are pure white; the sides and lower tail-coverts barred with brownish-black, as are the axillar feathers and lower wing-coverts; the lower surface of the primaries light grey, their shafts white. The upper parts generally are black, glossed with green, each feather margined with white triangular spots. The hind part of the rump and the upper tail-coverts white, barred with dusky. The anterior smaller wing-coverts, alula, primary coverts, and primary quills, brownish-black, without spots; shaft of first primary white, of the rest brown. Tail-feathers white, with numerous bands of dark greyish-brown; the middle six feathers more or less of a light brownish-grey toward the end, the bars not extending over their central part, their tips white.

Length to end of tail 14 inches, to end of wings 14, to end of claws 16; extent of wings 24¾; bill along the ridge $2\frac{3}{12}$, along the edge of the lower mandible $2\frac{5}{12}$, wing from flexure $8\frac{3}{12}$; tail $3\frac{8}{12}$; bare part of tibia 1½; tarsus $2\frac{5}{1}$; hind toe and claw $\frac{4}{12}$; middle toe and claw $1\frac{3}{12}$. Weight 6 oz.

Adult Female.

The female resembles the male.

Length to end of tail 13¾, to end of wings 14½, to end of claws 17¼; extent of wings 25½. Weight 6½ oz.

Greenshank ♀

Note.

View of St Augustine & Spanish Fort East Florida ♀

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

Both sexes become darker on the upper parts, at the approach of spring. This dark colour disappears after their autumnal moult.

The tongue is $1\frac{2}{12}$ inches in length, slender, sagittate and papillate at the base, triangular, tapering to a fine point. On the roof of the mouth are two rows of large blunt papillæ directed backwards; the edges of the mandibles are thick and grooved; the posterior aperture of the nares linear, $\frac{9}{12}$ long. The œsophagus, $6\frac{3}{4}$ inches in length, passes along the right side of the neck, and has a diameter of $\frac{3}{12}$ of an inch in its upper part, but is dilated to $\frac{5}{12}$ before it enters the thorax. The proventriculus is oblong, $\frac{8}{12}$ in length, its glandules oblong. The stomach is oblong, $1\frac{2}{12}$ inches in length, $\frac{8}{12}$ in breadth, its lateral muscles of moderate size, the tendons $\frac{5}{12}$ in diameter, the cuticular lining hard, with large longitudinal rugæ, and of a deep red colour. The intestine 2 feet 8 inches long, varying in diameter from $\frac{2}{12}$ to $\frac{2}{12}$. The rectum $1\frac{9}{12}$ inches long; the cœca $4\frac{5}{12}$ inches long, of an oblong form, with the extremity rounded, their diameter $\frac{1}{12}$.

In another individual, the œsophagus is $6\frac{1}{2}$ inches long; the stomach $1\frac{9}{12}$; the intestine 2 feet 3 inches; the rectum $1\frac{9}{12}$, the cœca $4\frac{1}{12}$, their diameter $\frac{1}{12}$.

The trachea, $4\frac{8}{12}$ inches long, $\frac{2}{12}$ in diameter above, $\frac{2}{12}$ below; of 120 unossified rings; its contractor muscles feeble, the sterno-tracheal moderate; a single pair of inferior laryngeal; the bronchial rings about 15.

THE GREENSHANK TATLER.

TOTANUS GLOTTIS, *Linn.*

PLATE CCCXLVI.—MALE.

While on Sand Key, which is about six miles distant from Cape Sable of the Floridas, in lat. 24° 57′ north, and 81° 45′ long. west of Greenwich, I shot three birds of this species on the 28th of May, 1832. I had at first supposed them to be Tell-tale Godwits, as they walked on the bars and into the shallows much in the same manner, and, on obtaining them, imagined they were new; but on shewing them to my assistant Mr. WARD, who was acquainted with the Greenshank of Europe, he pronounced them to be of that species, and I have since ascertained the fact by a comparison of specimens. They were all male birds, and I observed no material difference in

their plumage. We did not find any afterwards; but it is probable that we had seen some previously, although we did not endeavour to procure them, having supposed them to be Tell-tales. Almost all the birds seen in the Floridas at this date had young or eggs; and this circumstance increased my surprise at finding all the three individuals to be males. They had been shot merely because they offered a tempting opportunity, being all close together, and it is not often that one can kill three Tell-tales at once. As I am not acquainted with the habits of this species, I have applied to my friend Mr. MACGILLIVRAY, who has kindly furnished me with the following notice of them as observed in the Hebrides.

"The Greenshank is seen in the Outer Hebrides early in spring, and generally departs in October, although I have observed individuals there in November. Previous to the commencement of the breeding-season, and after the young are fledged, it resorts to the shores of the sea, frequenting pools of brackish-water at the head of the sand-fords, and the shallow margins of bays and creeks. Its habits are very similar to those of the Redshank, with which it associates in autumn. It is extremely shy and vigilant, insomuch that one can very seldom shoot it, unless after it has deposited its eggs. Many individuals remain during the summer, when they are to be found by the lakes in the interior, of which the number in Uist, Harris, and Lewis is astonishing. At that season it is very easily discovered, for when you are perhaps more than a quarter of a mile distant, it rises into the air with clamorous cries, alarming all the birds in its neighbourhood, flies round the place of its nest, now wheeling off to a distance, again advancing towards you, and at intervals alighting by the edge of the lake, when it continues its cries, vibrating its body all the while. I once found a nest of this bird in the island of Harris. It was at a considerable distance from the water, and consisted of a few fragments of heath and some blades of grass, placed in a shallow cavity scraped in the turf, in an exposed place. The nest, in fact, resembled that of the Golden Plover, the Curlew, or the Lapwing. The eggs, placed with their narrow ends together, were four in number, pyriform, larger than those of the Lapwing, and smaller than those of the Golden Plover, equally pointed with the latter, but proportionally broader and more rounded at the larger end than either. The dimensions of one of them, still remaining with me, are two inches exactly, by one inch and three-eighths; the ground colour is a very pale yellowish-green, sprinkled all over with irregular spots of dark brown, intermixed with blotches of light purplish-grey, the spots, and especially the blotches, more numerous on the larger end. Although in summer these birds may be seen in many parts of the islands, they are yet very rare, a pair being to be met with only at an

interval of several miles. In other parts of Scotland they are seen chiefly in autumn, but are of rare occurrence."

It is curious how nearly by this account the habits of the Greenshank correspond with those of the Tell-tale Godwit, *Totanus vociferus*.

Scolopax Glottis, Linn. Syst. Nat., vol. i. p. 245.
Greenshank, Nutt. Man., vol. ii. p. 68.
Greenshank, *Totanus glottis*, Aud. Orn. Biog., vol. iii. p. 483.

Male 11, wing, 7.

Only three procured on Sand Key, Florida.

Male in summer.

Bill long, slender, compressed, tapering, slightly recurved. Upper mandible with the dorsal line very slightly curved upwards, the ridge convex, the sides grooved nearly to the middle, afterwards convex, the edges inflected and directly meeting those of the lower mandible, the tip narrowed and slightly deflected. Nostrils basal, linear, pervious, nearer the edge than the dorsal line. Lower mandible with the angle very narrow and medial, beyond it the outline straight and ascending, the sides grooved as far as the angle and convex, the edges sharp and inflected, the point very narrow.

Head small, oblong, narrowed before. Neck rather long, slender. Body slender. Feet long and slender; tibia bare for half its length, scutellate before and behind; tarsus long, slender, covered before and behind with numerous scutella, the narrow lateral spaces with extremely small oblong scales. Toes small, very slender, scutellate above, flat beneath, marginate, the middle toe connected with the outer by a basal membrane, with the inner by an extremely small one; first toe extremely small, second slightly shorter than fourth, third considerably longer. Claws small, compressed, arched, rather obtuse, that of third toe with a dilated inner edge.

Plumage soft and blended, on the fore part of the head very short, on the neck short and almost downy. Wings rather long, very acute, narrow; primaries tapering and rounded, the first longest, the second little shorter, the rest rapidly graduated; secondaries obliquely rounded, the inner elongated and tapering. Tail short, of twelve narrow, rounded feathers, the two middle ones considerably longer than the rest.

Bill dusky-green, black at the end. Iris brown. Feet dull greenish-grey. A broad band from the bill to the eye, all the lower parts, as well as the back, excepting a small portion anteriorly, pure white; that colour, however, does not appear on the back, when the wings are closed, it being covered over by the scapulars. Loral space white, marked with small oblong spots of greyish-brown; sides of the lower part of fore-neck and a portion of the

breast faintly barred with grey. The upper part of the head, and the hind part and sides of the neck are greyish-white, with longitudinal central greyish-brown markings. The scapulars and inner secondaries are greyish-brown, the feathers edged with greyish-white, and lined or mottled with dark brown towards the margins; the smaller wing-coverts plain, the larger darker nearer the edge and margined with whitish, as are the other secondaries; the primary quills and their coverts dark brown, the shaft of the outer white. The tail is greyish-white, undulated with light brown, the four outer feathers on each side with only a series of spots on the outer edge, which on the outermost feathers is almost obliterated.

Length to end of tail 11 inches, to end of wings 12; wing from flexure 7; tail 3; bill along the back $2\frac{2}{12}$, along the edge of lower mandible $2\frac{3}{12}$; bare part of tibia $1\frac{5}{12}$; tarsus $2\frac{5}{12}$; middle toe $1\frac{3}{12}$, its claw $\frac{3}{12}$.

THE SEMIPALMATED SNIPE, OR WILLET.

TOTANUS SEMIPALMATUS, *Lath.*

PLATE CCCXLVII.—MALE AND FEMALE.

Many individuals of this fine species spend the winter in our Southern States, and the extent of its migration northwards is comparatively limited. Some are occasionally seen as far eastward as the neighbourhood of Boston, and a few have been known to breed not far from New Bedford in Massachusetts; but beyond that state the species may be said to be unknown. Their propensity to remain at all seasons in the immediate vicinity of the coast is such, that they are very seldom met with far inland, even along large rivers, on the margins of which they might find the food they usually prefer. I once shot one in autumn on the lower part of the Ohio, but it was much emaciated, and I concluded that its appearance there was merely accidental. From the mouth of the Mississippi to New York it is pretty generally found during the breeding season; but all the individuals betake themselves in winter to the shores of Carolina, Georgia, Florida, and the countries bordering the Mexican Gulf. I have very little doubt that those seen by Mr. SAY on the banks of the Missouri had accidentally visited that

Semipalmated Snipe Willet or Stone Curlew.

1 Male Spring Plumaage 2 Female in Winter

Drawn from Nature by J.J.Audubon FRSFLS.

Lith.d Printed & Col.d by J. T. Bowen, Phila.d

country, as the favourite haunts of this species at all seasons are the salt-marshes and sea shores. It is well ascertained that it occurs on the western coast, and I have seen many skins of it recently brought from the mouth of the Columbia river. It is probably from thence that it migrates to the shores of the Saskatchewan, where it was observed by Dr. RICHARDSON along the small saline lakes.

In the Middle States, the Semipalmated Snipe is known to every fisherman gunner by the name of "Willet," and from the Carolinas southward by that of "Stone Curlew." In the latter districts, during autumn and winter, it resorts to the stony shores of estuaries, the banks of racoon-oysters, and the extensive salt marshes so common there along the coast. On the 1st of May, 1832, while rambling over some large and partially submersed islets of the Floridas called Duck Keys, scantily covered with bushes and some mangroves, I saw a good number of these birds in company with the Great Marbled Godwit. The Willets were all paired and very clamorous, although we found none of their nests. To my great surprise, I saw them alight on the bushes and trees with as much ease as if they had been land birds, stand erect, open their wings to the sun, and await our approach, exhibiting, when thus perched, much less shyness than when on the ground. Until then I had never observed such a habit in this bird, and indeed had felt surprised at seeing the Bartramian Sandpiper, *Tringa Bartramia*, alight on fences and trees. Nothing of this kind is mentioned by WILSON, who, however, speaks of both species as if he were well acquainted with their habits. A few days after my visit to the Duck Keys, some nests containing eggs were found on other islets not far distant.

Along the shores of the Carolinas, this species begins to lay about the beginning of April; but in the Middle States, in New Jersey, for example, it seldom makes its appearance before the 15th of April, and does not begin to breed until a month later. At the approach of the love season, the Willets shew a great degree of vivacity, ramble much on wing, and fill the air with their sharp cries. Once mated, they attend to the security of their eggs and brood with affectionate care, and are silent until disturbed by the approach of some of their numerous enemies. The sight of a Crow, a Turkey Buzzard, a quadruped of any kind, and more especially of a gunner, at once excites the greatest alarm; and, rising on wing, they fly above and around you at a considerable distance, vociferating their anger with great vehemence, and continually endeavouring to allure you away from the spot where their treasure is concealed. Should they have young broods, they not unfrequently alight within sight, emit clicking and querulous notes, raise their wings upright, and run over the ground as if wounded, moving in so pitiable a manner as frequently to excite a good feeling towards them in the gunner

who, should he be a parent himself, is almost sure to leave them unmolested. When much pursued, the birds join and form a flock, the individuals of which continue to wheel through the air, at some distance from their nests, until their enemy has departed.

The Semipalmated Snipe is at all times a shy and wary bird, so that in approaching it the sportsman requires to use the greatest caution. The method which I found most effectual was to employ a well-trained dog, and conceal myself among the rankest herbage of the marshes. The Willets rarely failed to fly close over the dog, and as he now and then, playfully, as it were, approached me, the birds came within shooting distance. On such occasions, if one is brought down, another may follow, provided the sportsman is quick; but, after being thus shot at, the Willets generally take a long circuit, and remove towards some clear spot near the water, where they alight and watch your motions. The cries of one suffice to alarm all within hearing, and you see all of them with outstretched legs and necks running away as you approach. Often at the very instant when you are preparing to shoot, they all rise on wing, fly across some bay or creek, and betake themselves to the marsh, where they are safe from your pursuit.

During winter you frequently see these birds in the Southern States along the naked shores. The moment they see you the cry of alarm is sounded, and the flock, which now consists of one, two, or perhaps three families, suffer you to come almost within shot, as if purposely to tantalize you, but at this moment fly off circuitously over the water, and alight at the distance of some hundred yards. At such times you may procure them by floating your boat quietly along the shores; but the experiment rarely succeeds on the same flock more than once. When they are on large racoon-oyster beds, it is almost impossible to approach them; and if there should be a few Curlews or Oyster-catchers among them, it were better for you to go in search of some other game.

The flight of this species is strong, rapid, and greatly protracted. Its movements on wing greatly resemble those of the Oyster-catcher, and, unless during the breeding season, are performed low over the waters. They seldom rise without emitting their usual notes, which resemble the syllables *will-willet*, or *will, will, willet*, and are different from the softer and more prolonged whistling notes which they emit during the love season. They generally travel in flocks, even in spring, and congregate for the purpose of breeding, being attracted when passing by the notes of those which have already arrived at a chosen spot. The males and females remain together until autumn, when several families join and live peaceably together. When wounded and brought to the water, they swim tolerably well, but do not dive, although they now and then, on being approached, try to submerse themselves.

The Willets retire to the interior of the larger salt-marshes for the purpose of forming their nests and raising their broods in security. There, in the vicinity of the shallow pools, which frequently occur in such places, the bird prepares a nest on the ground, among the rank grass, of which the tenement itself is composed. It is usually raised to the height of from three to five inches, and is, I believe, annually augmented or repaired. WILSON says that this augmentation or raising of the nest is carried on whilst the Willet is laying and sitting; but this I have never observed. The eggs, usually four in number, are placed with the broad end outwards, as is the case with those of most birds of this tribe. They measure two inches and one-eighth in length, by one inch and a half in breadth, are much flattened at the larger end, and more or less pointed at the other. The shell is smooth, of a dull yellowish-olive tint, irregularly spotted and blotched with dark umber. The eggs afford excellent eating. Both birds incubate, sitting alternately day and night. The young run about on leaving the shell, and are carefully fed by their parents. They are of a greyish hue, and covered with down, but soon show feathers, grow rapidly, become fat and juicy, and by the time they are able to fly, afford excellent food. At the first moult they acquire their full plumage.

The food of the Willet consists of aquatic insects, small crabs, and fiddlers, which they procure either by pursuing them on foot or by probing for them in their burrows, along the mud-bars, and in the crevices of the creeks and salt-water ditches. I have also observed it turning over stones and shells to seek for worms beneath them.

The males are smaller than the females. I have presented you with figures of the adult both in the winter and summer plumage.

SEMIPALMATED SNIPE, *Scolopax Semipalmata*, Wils. Amer. Orn., vol. vii. p. 27.

TOTANUS SEMIPALMATUS, *Semipalmated Tatler*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 388.

SEMIPALMATED SNIPE or WILLET, Nutt. Man., vol. ii. p. 144.

SEMIPALMATED SNIPE or WILLET, *Totanus semipalmatus*, Aud. Orn. Biog., vol. iii. p. 510; vol. v. p. 585.

Male, 15½, 27¾. Female, 15½, 31.

Breeds abundantly in Texas, and along the Atlantic shores to New York, sparingly as far as Massachusetts. Constant resident in the Southern States. Rare in the interior.

Adult Male in spring.

Bill long, slender, compressed, tapering, straight or recurved to an almost imperceptible degree. Upper mandible with the dorsal line straight, the ridge convex, flattened at the base, the sides grooved to the middle, after-

wards convex, the edges broad and flattened, the breadth of the mandible a little increased towards the point, which is narrowed, slightly deflected and obtuse. Nostrils sub-basal, linear, pervious, nearer the edge than the dorsal line. Lower mandible with the angle very narrow and medial, beyond it the outline slightly ascending and straight, sides grooved as far as the angle, and convex, the edges broad and flat, the point narrow and slightly incurved

Head small, oblong, narrowed before. Neck rather long, slender. Body slender. Feet long and slender; tibia bare for nearly half its length, scutellate before and behind; tarsus long, slender, covered before and behind with numerous scutella, the narrow lateral spaces with extremely small oblong scales. Toes small, slender, scutellate above, flat beneath, marginate, the anterior toes connected by basal membranes, which extend along their sides, the outer membrane larger than the inner; first toe extremely small, second and fourth about equal, third little longer. Claws small, compressed, slightly arched, obtuse, that of third toe with a dilated inner edge.

Plumage soft and blended, on the fore part of the head very short, on the neck short and very soft. Wings long, very acute, narrow; primaries tapering and rounded, the first longest, the second little shorter, the rest rapidly graduated; secondaries obliquely rounded, the inner elongated and tapering. Tail short, of twelve narrow, rounded feathers, the two middle ones a little longer than the rest.

Bill light blue, dusky towards the end. Iris brown. Feet light blue; claws black. Head and neck brownish-grey, streaked with blackish-brown; the throat, and a band from the bill over the eye, white. Fore part of back and scapulars brownish-grey, variegated with central markings and bars of blackish-brown; the hind part of the back brownish-grey, with a gloss of olive. Wing-coverts grey, with central lines of brownish-black; primary coverts and primary quills brownish-black, but the latter white in their basal half; outer secondaries white, inner like the scapulars. Lower wing-coverts dusky; breast and sides white, the latter undulatingly barred with brownish-black; abdomen and lower and upper tail-coverts white, some of them, however, with a few dusky bars. The four middle tail-feathers are barred with brownish-black and brownish-grey, the rest pale grey fading to white on the outer, and all more or less minutely mottled with pale brown.

Length to end of tail $15\frac{1}{4}$ inches, to end of wings 15, to end of claws $17\frac{1}{2}$; extent of wings $27\frac{3}{4}$; wing from flexure $8\frac{1}{4}$; tail $3\frac{2}{12}$; bill along the back $2\frac{1}{4}$, along the edge of lower mandible $2\frac{4}{12}$; tarsus $2\frac{1}{4}$; middle toe $1\frac{5}{12}$, its claw $\frac{1}{4}$. Weight 7 oz.

Adult Female in winter.

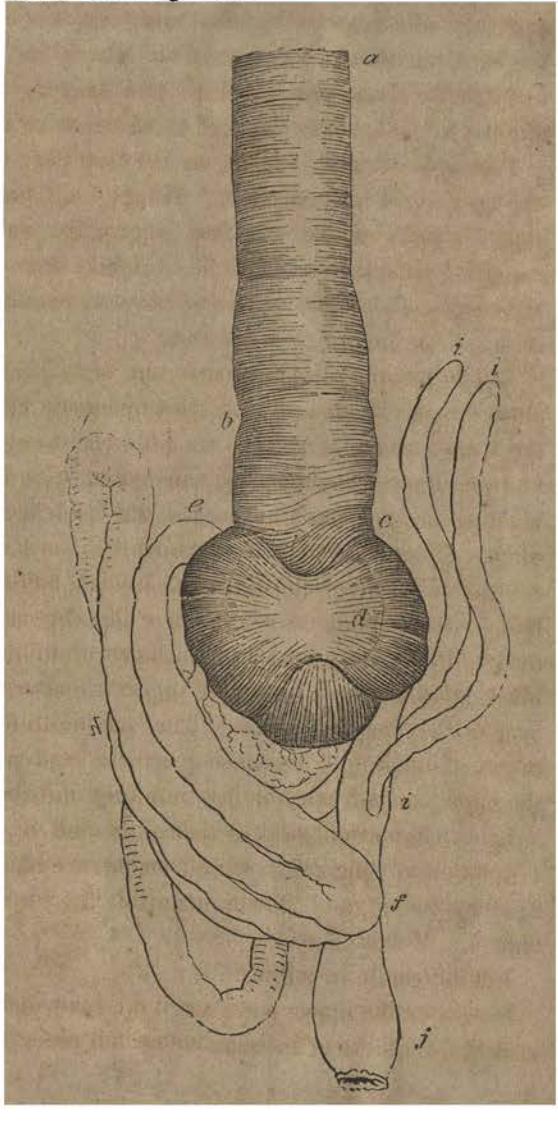
In winter the upper parts are light brownish-grey, the fore part of the neck and the sides of the same colour but paler; the throat, breast, abdomen,

and rump white; the lower and upper tail-coverts with a few undulated lines of brownish-grey; the wings as in summer, as is the tail, only that the middle feathers are grey.

Length 15½ inches; wing from flexure 8½; extent of wings 31; tail, 3¼; bill along the back $2\frac{7}{12}$, along the edge of lower mandible $2\frac{6}{12}$; tarsus $1\frac{7}{12}$; middle toe $1\frac{5}{12}$, its claw ¼. Weight 10 oz.

Female. Length to end of tail 15½ inches, to end of wings 16, to end of claws 18¼; wing from flexure 9½; tail 3½; bill along the ridge $2\frac{7}{12}$, along the edge of lower mandible $2\frac{8}{12}$; bare part of tibia $1\frac{5}{12}$; tarsus $2\frac{7}{12}$; first toe $\frac{5}{12}$, its claw $\frac{1}{12}$; second toe $1\frac{3}{12}$, its claw $\frac{1}{12}$; third toe $1\frac{1}{12}$, its claw $\frac{3}{12}$; fourth toe $1\frac{3}{12}$, its claw $\frac{3}{12}$; extent of wings 30¼.

Mouth very narrow, its width being only 5 twelfths; the two longitudinal ridges on the palate remarkably elevated and thin; two series of papillæ; posterior aperture of nares linear; anterior part of upper mandible flat, with a median prominent line, and thin projecting edges; lower mandible deeply grooved. Tongue 1 inch 8 twelfths long, trigonal, slender, tapering to a slender horny channelled point; its base emarginate and papillate. Œsophagus, *a b c*, 6¾ inches in length, 11 twelfths in width; proventriculus, *b c*, 10 twelfths broad. Stomach, *c d e*, a very strong gizzard, of a roundish form, 1½ inches long, and of the same breadth; its lateral muscles very large and distinct, as are the tendons; epithelium very thick, dense, with two oblong grinding plates, each having



four broad longitudinal rugæ, and of a bright red colour. Intestine, *e f g h i j*, 3 feet 3 inches long, only 3 twelfths in width at the upper part, toward the rectum 2 twelfths. Cœca, *i i*, 3¼ inches long; their distance from the extremity 3 inches; their width 2 twelfths, the extremity rounded.

Trachea 5¼ inches long, from 3¼ twelfths to 2 twelfths in breadth, much flattened; its rings unossified, 125, and 1 dimidiate. Proventricular half rings 15. Lateral muscles rather strong; a single pair of inferior or laryngeal muscles.

Genus V.—LIMOSA, *Briss.* GODWIT.

Bill very long, slender, sub-cylindrical, tapering to an obtuse point, slightly recurved; upper mandible with the dorsal line slightly curved upwards, the ridge convex, the sides with a narrow groove extending almost to the point, the edges rather obtuse, the tip very slightly enlarged; lower mandible with the angle very long and extremely narrow, the sides with a narrow groove extending almost to the end, the edges blunt, the tip obtuse. Nostrils basal, linear, nearer the edge. Head small, oblong, neck rather long, slender; body slender. Feet long and slender; tibia bare for about a third, anteriorly scutellate; tarsus long, slender, scutellate before and behind; toes small, slender, scutellate above; anterior connected by webs at the base, first very small. Claws small, compressed, slightly arched, obtuse. Plumage soft and blended. Wings rather long, narrow, very acute; primaries tapering, the first longest, the inner secondaries elongated. Tail short, even, of twelve narrow rounded feathers.

Great Marbled Godwit.

Drawn from Nature by J.J. Audubon, F.R.S. F.L.S.

1. Male 2. Female

Lith.d Printed & Col.d by J. T. Bowen Philad.a

THE GREAT MARBLED GODWIT.

LIMOSA FEDOA, *Linn.*

PLATE CCCXLVIII.—MALE AND FEMALE.

This fine bird is found during winter on all the large muddy flats of the coast of Florida that are intermixed with beds of racoon-oysters. As the tide rises it approaches the shores, and betakes itself to the wet savannahs. At this season it is generally seen in flocks of five or six, searching for food in company with the Tell-tale, the Yellow-shanks, the Long-billed Curlew, and the White Ibis. While feeding, it probes the mud and wet sand, often plunging its bill to its whole length, in the manner of the Common Snipe and the Woodcock. It is fond of the small crabs called fiddlers, many of which it obtains both by probing their burrows, and running after them along the edges of the salt meadows and marshes. Sometimes you see it wading in the water up to its body, and when about to lose ground, it rises and extends its wings, still continuing to search for fry, until forced to fly off by the increased depth of the water, when it alights on the shore and recommences its operations. While feeding on the banks, it appears to search for food between and under the oysters with singular care, at times pushing the bill sidewise into the soft mud beneath the shells. Towards the middle of the day, the separate flocks come together, assembling on some large sand-bar, where they remain for hours, trimming their plumage, after which many of them continue some time motionless, standing on one leg. Suddenly, however, they are all seen to stretch their wings upwards, their bleating notes are heard, and the next moment the flock rises, and disperses in small parties, each of which proceeds in a different direction in search of food.

Few birds are more shy or vigilant than the Great Marbled Godwit. It watches the movements of the gunner with extreme care, particularly while in small flocks, in which case it rarely happens that one can approach them, and they are more commonly shot by coming unawares over the concealed sportsman. When in large flocks I have known them to be neared, and killed in great numbers. On such occasions, they walk towards each other, until they are quite close, when they stand still. Then is the time for the gunner, who has driven them before him as it were, to the extremity of a

mud or sand-bar, to fire with a certainty of obtaining something worth his trouble, for besides the number killed by his first shot, he is likely to commit equal havoc with the second, as they fly off in a dense mass.

On the 31st of May, 1832, I saw an immense number of these birds on an extensive mud-bar bordering one of the Keys of Florida, about six miles south of Cape Sable. When I landed with my party, the whole, amounting to some thousands, collected in the manner mentioned above. Four or five guns were fired at once, and the slaughter was such, that I was quite satisfied with the number obtained, both for specimens and for food. For this reason, we refrained from firing at them again, although the temptation was at times great, as they flew over and wheeled round us for awhile, until at length they alighted at some distance and began to feed. Those which we killed were plump, and afforded excellent eating. I was much surprised to find these Godwits so far south, but next morning, when none were to be seen excepting some wounded birds which we had not pursued, I concluded that the flock, which was the largest I have seen, had merely alighted there for the day.

The flight of this bird is regular and rather quick, although in the latter respect not to be compared with that of the Curlews. When flying to a considerable distance, or migrating, they usually proceed in extended lines, presenting an irregular front, which rarely preserves its continuity for any length of time, but undulates and breaks as the birds advance. The beat of their wings is regular, and they rarely utter any cries on such occasions.

This species enters the United States, on its return from its northern breeding-grounds, about the middle of August, and probably travels along the coast at that period as well as when proceeding northward, none having been seen by me or my party in Labrador or Newfoundland, and their passage having been observed only on the Atlantic shores of Nova Scotia, and the whole line of our coast, on different parts of which some of the flocks alight, and rest for a few weeks, both in spring and in autumn. I may add, that I never saw one of these birds beyond the distance of a few miles from the sea-shore.

GREAT MARBLED GODWIT, *Scolopax Fedoa*, Wils. Amer. Orn., vol. vii. p. 30.

LIMOSA FEDOA, Bonap. Syn., p. 328.

LIMOSA FEDOA, *Great Marbled Godwit*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 395.

GREAT MARBLED GODWIT, Nutt. Man., vol. ii. p. 173.

GREAT MARBLED GODWIT, *Limosa Fedoa*, Aud. Orn. Biog., vol. iii. p. 287; vol. v. p. 590.

Male, 16½, 28½. Female, 20½.

Passes in spring from Texas along the coast, in immense flocks, to Massa-

Hudsonian Godwit.

1. Male, 2. Female Sumer Plumage.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

chusetts, and apparently across the land, to the Saskatchewan, where it breeds. None seen in Labrador. A few breed in South Carolina, perhaps also in Texas. Not observed in the Western country. In autumn returns southward beyond the limits of the United States.

Adult Male.

Bill very long, slender, sub-cylindrical, tapering to the obtuse point, slightly recurved. Upper mandible with the dorsal line slightly curved upwards in its whole extent, the ridge convex, the sides with a narrow groove extending almost to the point, the edges rather obtuse, the tip very slightly enlarged, Nostrils basal, lateral, nearer the edge than the dorsal line, small, linear, pervious. Lower mandible with the angle very long and extremely narrow, the dorsal line slightly recurved, the sides with a narrow groove extending almost to the end, the edge rather blunt, the tip obtuse.

Head small, oblong, compressed. Neck rather long, slender. Body slender. Feet long and slender. Tibia bare for about a third, anteriorly scutellate; tarsus long, slender, covered anteriorly with numerous scutella, scutellate behind also, laterally reticulate; toes small, slender, scutellate above, flat beneath, broadly marginate, the anterior connected at the base by webs, of which the outer is much larger; first toe very small, second slightly shorter than fourth, third little longer. Claws small, compressed, slightly arched, obtuse, that of middle toe with the inner edge curved outwards and thin.

Plumage soft and blended, on the fore part of the head very short, on the neck short and almost downy, on the abdomen and sides full, on the back moderate; all the feathers oblong and rounded. Wings rather long, very acute, narrow; primaries tapering, the first longest, the second little shorter, the rest rapidly graduated; secondaries incurved, obliquely rounded, the inner elongated and tapering. Tail short, even, of twelve narrow, rounded feathers.

Bill dull flesh-colour in its basal half, the rest blackish-brown. Iris brown. Feet bluish-grey. The head and neck light yellowish-grey, the throat without markings, the upper part of the head streaked with blackish-brown, as is the hind-neck, the markings there being fainter. The rest of the upper parts spotted and barred with brownish-black and greyish-yellow. Alula and primary coverts brownish-black, as are the outer webs of the three first quills, those of the other primaries, and both webs of the secondaries, reddish-ochre, all more or less mottled with dusky, and the primaries of that colour towards the end, but with the terminal margins whitish; the inner secondaries barred like the back, as are the tail-feathers. Breast, abdomen, and lower surface of wings, light reddish-yellow, the axillar feathers of a deeper tint, the sides faintly barred with dusky.

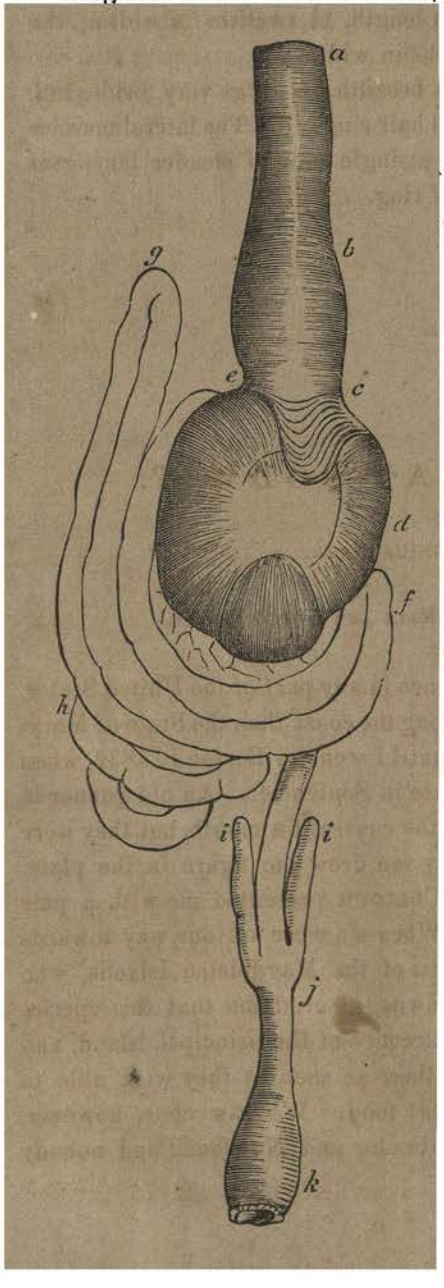
Length to end of tail 18½ inches, to end of wings 19½, to end of claws 21;

wing from flexure 9 ; tail 3½ ; bill along the ridge $4\frac{6}{12}$, along the edge of lower mandible $4\frac{4}{12}$; bare part of tibia $1\frac{7}{12}$; tarsus $2\frac{8}{12}$; middle toe $1\frac{8}{12}$, its claw $\frac{4}{12}$.

Adult Female.

The female is considerably larger than the male, but is similar in colouring, the lower parts of a less bright buff.

Length to end of tail 20½ inches, to end of wings 21½ ; bill 5.



The inner edge of the middle claw is usually broken, which is a common circumstance in birds that have it very thin, but there are no regular serratures or notches upon it.

Adult Male. Length to end of tail 16½ inches, to end of wings 17, to end of claws 20 ; extent of wings 28½ ; wing from flexure 8¾ ; tail $3\frac{3}{12}$; bill along the ridge $3\frac{10}{12}$, along the edge of lower mandible $3\frac{9}{12}$; bare part of tibia $1\frac{9}{12}$, tarsus $2\frac{0}{12}$; hind toe ½, its claw $\frac{2}{12}$; second toe 1⅜, its claw $\frac{3}{12}$; third toe $1\frac{5}{12}$, its claw $\frac{4}{12}$; fourth toe $1\frac{2}{12}$, its claw $\frac{2}{12}$.

Palate flat, narrow, with two longitudinal papillate ridges, and four series of very large papillæ, terminating anteriorly in a single ridge, The edges of the mandibles flat. Tongue very long, 2 inches 1 twelfth, trigonal, tapering to a point, concave above, with two series of large papillæ, its base emarginate and papillate. The upper mandible is entirely destitute of motion ; the lower with a joint on each side, as in the Herons. Width of mouth 4½ twelfths. Œsophagus, *a b c*, 6¼ inches long, at the commencement ½ inch in width, presently contracting to 4 twelfths, and so continuing as far as the proventriculus, which is 7 twelfths in breadth. Stomach, *c d e*, of an oblong form, 1 inch 4 twelfths in length, 9 twelfths

in breadth; its lateral muscles moderately strong, the tendons broad and radiated; the epithelium dense, thick, with numerous longitudinal rugæ. Its contents are remains of small shell-fish. Proventricular glands small and very numerous, forming a belt 10 twelfths in breadth. Intestine, *e f g h j k*, 2 feet 6 inches long; it curves at first in the usual manner, passes forward to above the heart, then runs backward, and forms seven turns; its width from 4½ twelfths to 3 twelfths. Rectum, *j k*, very short, being only 1¼ inches in length; cœca, *i i*, 9 twelfths in length, 1½ twelfths in width; the cloaca, *k*, an oblong dilatation, 5 twelfths in width.

Trachea 4¾ inches long, 3 twelfths in breadth, its rings very feeble, 132, with a single dimidiate ring. Bronchial half rings 18. The lateral muscles strong; the sterno-tracheal moderate; a single pair of slender laryngeal muscles going to the first bronchial half ring.

THE HUDSONIAN GODWIT.

LIMOSA HUDSONICA, *Lath.*

PLATE CCCXLIX.—ADULT MALE AND YOUNG FEMALE.

This species, which is of rare occurrence in any part of the United States, is scarcely ever found farther south along the coast than the State of Maryland. I had never seen it in the flesh, until I went to Boston in 1832, when I found specimens of it in the market late in September. An old gunner in my employ brought me eight or ten in the course of a month, but they were all young birds. From one of them my son drew the figure in the plate. While I was at Pictou Professor MACCULLOCH presented me with a pair of adult birds in beautiful plumage. When we were on our way towards Labrador, the fishermen and inhabitants of the Magdeleine Islands, who gave the name of Curlews to the Godwits, assured me that this species breeds there in some marshes at the extremity of the principal island, and that they were in the habit of killing them as soon as they were able to fly, when they were considered excellent food. We saw none, however, on our voyage farther north, and in Labrador and Newfoundland nobody seemed to know them.

My young friend THOMAS MACCULLOCH, who gave me, in London, several well-mounted specimens of this species, in the spring of 1835, confirmed the assertions of the people of the Magdeleine Islands, and informed me that these birds breed at times on Prince Edward's Island, from which they spread along the coast of Nova Scotia, where they remain until very severe weather comes on, when they suddenly disappear.

I have tried to give a good figure of the adult, and that made by my son will, I hope, be considered faithful by those who are acquainted with the bird in its autumnal plumage. The adult has been represented as lying down, in order to show the difference between this species and the *Limosa melanura* of Europe, to which it is allied, but from which it may readily be distinguished at all periods by the black colour of the inner wing-coverts. In the European bird these feathers are white, and the species does not occur in the United States, perhaps not in any part of North America. The females are rather larger than the males, but nothing is known respecting the nests or eggs.

SCOLOPAX HUDSONICA, Lath. Ind. Orn., vol. ii. p. 720.

LIMOSA HUDSONICA, *Hudsonian Godwit*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 396.

HUDSONIAN GODWIT, Nutt. Man., vol. ii. p. 175.

HUDSONIAN GODWIT, *Limosa hudsonica*, Aud. Orn. Biog., vol. iii. p. 426; vol. v. p. 592.

Male, 15¾, 28. Female, 16¾, 29.

Rather rare along the Atlantic Districts in spring and autumn. Breeds in the barren grounds of the Arctic seas in great numbers. Migratory.

Adult Male.

Bill double the length of the head, sub-cylindrical, compressed at the base, tapering to an obtuse point, which is a little enlarged, slightly recurved. Upper mandible with the dorsal line slightly curved upwards in its whole extent, the ridge convex, the sides with a narrow groove extending almost to the point, the edges rather obtuse, the tip slightly enlarged. Nostrils basal, lateral, near the edges, small, linear, pervious. Lower mandible with the angle very long and extremely narrow, the dorsal line slightly recurved, the sides with a narrow groove extending almost to the end, the edges rather blunt, the tip obtuse.

Head small, oblong, compressed. Neck rather long and slender. Body slender. Feet long and slender; tibia bare for about a third, anteriorly scutellate; tarsus long, slender, covered anteriorly and posteriorly with numerous scutella, laterally for a very small space reticulate; toes small, slender, scutellate above, flat beneath, broadly marginate, the anterior connected at the base by webs, of which the outer is much larger; first toe very small, second slightly shorter than fourth, third little longer. Claws

small, compressed, slightly arched, obtuse, that of middle toe with the inner edge curved outwards and thin.

Plumage soft on the head, neck and lower parts blended, on the back imbricated; all the feathers oblong and rounded. Wings long, very acute, narrow; primaries tapering, the first longest, the second little shorter, the rest rapidly graduated; secondaries incurved, obliquely rounded, with a recurved tip, the inner elongated and tapering. Tail short, of twelve rounded feathers, slightly forked, but with the two middle feathers a little longer than those next them.

Bill greyish-yellow, dark brown along the ridge of the upper mandible, and blackish towards the tips of both. Iris brown. Feet light greyish-blue. The head and neck brownish-grey, with darker lines; a band from the bill over the eye, and the throat greyish-white; the back deep grey; the scapulars brownish-black, with small white markings on the edges of the feathers; the smaller wing-coverts, alula, primary quills and their coverts brownish-black; the secondaries lighter, and with their inner webs pale grey; tips of the primary coverts and bases of the quills, white, as is a broad band over the rump. Tail feathers and upper tail-coverts brownish-black, their bases white, and their tips narrowly edged with brownish-white. The lower parts are bright yellowish-red, the sides mottled with dark brown; the abdomen and lower tail-coverts paler and variegated with dusky; the lower wing-coverts blackish-brown, edged with whitish.

Length to end of tail $15\frac{3}{4}$ *inches*, to end of wings $16\frac{3}{8}$, to end of claws $19\frac{3}{4}$; wing from flexure $8\frac{1}{2}$; tail $3\frac{1}{4}$; extent of wings 28; bill along the back $3_{\frac{7}{12}}$; along the edge of lower mandible $3_{\frac{6}{12}}$; bare part of tibia $1\frac{1}{4}$; tarsus $2\frac{1}{2}$; middle toe $1_{\frac{4}{12}}$, its claw $\frac{2}{12}$. Weight 9 oz.

Young Female in winter.

The bill, iris and feet, as in the adult male. Upper part of the head dusky, with darker lines; sides of the head, and the neck, greyish-yellow; a whitish band over the eye. The lower parts are pale brownish-grey, the upper brownish-grey; the fore part of the back and scapulars brownish-black, the feathers edged with light brownish-red; the wing-coverts brownish-grey; the quills as in the adult, as is the tail, anterior to which is also a broad white band.

In September, 1835, I shot, near Edinburgh, a young individual of *Limosa rufa*, which I had previously observed for some time. It thrust its bill into the wet sand in the same manner as the Woodcock; and I was much surprised, on taking it up, to see that its bill was perfectly straight in its whole length. When I opened it, however, in order to place a little cotton in its throat, a sudden spring-like movement of the mandibles made

them curve upwards. Never having kept birds of this genus alive, I am unable to say whether the bill be naturally straight or not.

The following are the dimensions of a very fine specimen selected from among five presented by Dr. T. M. BREWER, of Boston. Length to end of tail 16¾ inches, to end of wings 17¾, to end of claws 18½; extent of wings 2 feet 5 inches; bill along the ridge 3½, along the edge of lower mandible also 3½; wing from flexure 6$\frac{5}{12}$; tail 3$\frac{5}{12}$; bare part of tibia ½; tarsus 2½; hind toe $\frac{11}{12}$, its claw $\frac{1}{12}$; second toe 1, its claw $\frac{7}{12}$; third toe 1$\frac{11}{12}$, its claw $\frac{7}{12}$; fourth toe 1$\frac{1}{12}$, its claw $\frac{1}{12}$.

The interior of the mouth as in the other species, its width 4⅜ twelfths, the fore part of the palate with three series of large papillæ. Tongue 1$\frac{9}{12}$, slender, tapering to a point, trigonal. Channelled above, horny beneath. Œsophagus 6¾ inches long, 4 twelfths wide, proventriculus 5 twelfths. Stomach a muscular gizzard of an oblong form, 1 inch 3 twelfths long, 1 inch in breadth; its lateral muscles strong and well marked; the epithelium dense, thick, with numerous longitudinal rugæ, and of a brownish-red colour. Contents of the stomach, particles of quartz. Proventricular belt 9 twelfths in breadth. Intestine 1 foot 8 inches long, 2¾ twelfths in width; rectum 3 twelfths wide, dilated into an ovate cloaca, 8 twelfths in width; cœca 4 twelfths long, 1¼ twelfths in width, 2¾ inches distant from the extremity.

Trachea 5 inches long, much flattened, from 3 twelfths to 2 twelfths in breadth; its rings feeble, 120, and a single dimidiate ring. Bronchial half rings 15. Muscles as in the other species.

GENUS VI.—SCOLOPAX, *Linn.* SNIPE.

Bill twice as long as the head; subulate, straight, compressed for half its length, depressed toward the end; upper mandible with the dorsal line declinate at the base, then straight, at the end slightly arched, that part being considerably enlarged, the ridge convex, towards the end flattened, the sides with a narrow groove extending to near the tip, the edges soft and obtuse or flattened, the tip narrowed, but blunt; lower mandible with the angle extremely long and narrow, the sides erect, with a longitudinal groove, the

Wilsons Snipe Common Snipe.

1. Male. 2. & 3. Females.

Plantation Near Charleston, S.C.

Drawn from Nature by J.J.Audubon F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

edges flattened, and directly meeting those of the upper mandible, the extremity enlarged, the tip contracted and rather blunt. Nostrils basal, linear, very small. Head rather small, oblong, the forehead elevated and rounded; neck rather short; body rather full. Legs of moderate length, slender; tibia bare below; tarsus scutellate before and behind; toes very slender, free, scutellate; first toe very small and elevated, lateral toes nearly equal, the outer connected with the third by a basal web. Claws small, slightly arched, compressed, rather acute. Plumage very soft, rather dense. Wings long, narrow, pointed; the first quill longest; inner secondaries much elongated. Tail moderate, nearly even.

WILSON'S SNIPE.—COMMON SNIPE.

SCOLOPAX WILSONII, *Temm.*

PLATE CCCL.—MALE AND FEMALES.

The summer range of the Common American Snipe extends northward to a considerable distance beyond the limits of the United States. During the breeding season it is not to be found in our Southern Districts, much less does it breed on the borders of the Mississippi, as has been alleged by some writers. It may indeed sometimes happen that a pair is found during summer in the mountainous districts of the Carolinas; but occurrences of this kind are rare, and are probably caused by one of the birds being disabled, and so prevented from prosecuting its journey farther northward, although not incapacitated for reproduction. Some pairs are more frequently met with in Virginia, Maryland, and Pennsylvania, either with eggs or with young, but the great body of this species goes farther north for the purpose of breeding. In the State of Maine, they become tolerably abundant at this season, and as you proceed eastward you find them more numerous. In Nova Scotia they are plentiful during summer, and there they breed in all convenient places.

In these northern districts, the Snipe begins to lay its eggs in the early part of June. The swampy parts of the extensive moss-covered marshes in elevated situations afford it places of security and comfort, in which it is not

likely to be disturbed by man, and finds immediately around it an abundance of food. The nest itself is a mere hollow in the moss, scantily inlaid with a few grasses. The eggs, which, like those of many of the Tringas, are four, and placed with the small ends together, measure one inch and five-eighths by one and one-eighth, being pyriform, with the tip somewhat inflated. The ground colour is a yellowish-olive, pretty thickly spotted and blotched with light and dark umber, the markings increasing in size as they approach the large end, where they form a circle. The young, like those of the Woodcock, leave the nests as soon as hatched, and so resemble those of the Common Snipe of Europe, *Scolopax Gallinago*, that the same description answers for both, they being covered with down of different tints of brown and greyish-yellow. The bill is at this age short, very soft and easily bent by the least pressure; nor does it acquire its full growth before winter, and its length differs in different apparently full grown individuals, by half an inch or even three-fourths. They seem to feed at first on minute insects collected on the surface of the mires, or amid the grass and moss; but as they grow older, and the bill becomes firmer and larger, they probe the ground like their parents, and soon become expert at this operation, introducing the bill at every half inch or so of the oozy mire, from which they principally obtain their food. In the Middle States, this Snipe, however, has been found breeding in meadows, as well as in the State of Maine; and it also nestles in the mountainous districts of these parts of the Union. I never had the good fortune to meet with a nest in Pennsylvania, although I have known several instances of a pair breeding not far from Mill Grove on the Perkioming.

In the Western Country this bird arrives from the north early in October, alighting in the low meadows watered by warm springs, and along the borders of ponds and small secluded rivulets, sometimes in the corn-fields after a continuance of rainy weather, but never in the woods or any place from which it cannot easily make its escape when approached. In Kentucky it often remains all winter, and is at times very abundant. Farther south, it is more plentiful, especially in the lower parts of Louisiana, where it is named "*cache cache*" by the Creoles, and over the whole country between that State and the Carolinas. During winter, it is not uncommon in Louisiana to meet with it in flocks of considerable numbers, as is also the case in South Carolina, where the grounds of the rice-planter afford it abundance of food. In some fields well known to my Charleston friends, as winter retreats of the snipe, it is shot in great numbers. At times it is so much less careful about concealing itself than at others, that it is not at all uncommon to see it walking about over its wet feeding-grounds, and on such occasions many are killed. In such places I have found these birds by fifties

and hundreds in fields of a few acres. At the first shots, dozens in succession would take to wing, each emitting its cry of *wau-aik*, after which they would rise in the air, gradually collect, fly around a few times to the distance of some hundred yards, and returning pitch towards the ground, and alight, with the velocity of an arrow, not many yards from the spot where they had previously been. In a few minutes they would all disperse, to seek for food. So much are they at times attached to particular spots, that the sportsmen continue to shoot them until their number is reduced to a few, which having perhaps been several times shot at, become extremely wary, and are left to entice others to join them, so that another day's sport may be obtained. It is not rare to find some of these birds in the immediate vicinity of Charleston, when they are pursued by the younger gunners, and sometimes by keen sportsmen. I have known eight or ten procured by one person in a short time, between that city and the race-ground, which is scarcely a mile distant. They are also abundant in the wet savannahs in the Floridas, from which they retire a few weeks earlier than from Louisiana and the Carolinas, where some remain until the beginning of April. During the whole of the winter months, these birds are observed to ramble from one place to another, and a field which yesterday contained a good number, has only a few to-day, and to-morrow may be quite deserted. But before the end of a week, there you will find them again as abundant as at first. They rarely visit salt waters, and never resort to the interior of the woods.

The flight of the Snipe while travelling to some distance, is performed at a considerable elevation, by regular and quickly repeated beats of the wings. Yet they do not appear as if pursuing a direct course, for every now and then they deviate a little to either side. They pass over rapidly, however, and are able to travel to a great distance in a short time. Their migrations, although performed singly, or in small parties of a single family, may be said to be in a manner continuous, as in the course of a few days a whole section of country, in which none had been seen for several months, becomes well supplied with them. When surprised by the sportsman, or any other enemy, they usually rise at one spring, dash through the air in a zig-zag course, a few feet from the ground, emit their cry when about twenty yards distant, and at times continue to employ this cunning mode of escape for sixty or seventy yards, after which they mount into the air, and perform the rounds already described. I have found the instant at which they utter their note of alarm the best for pulling the trigger; but almost every sportsman has his peculiar fancy, and many are glad to kill them the best way they can; for he who shoots thirty Snipes in succession, without missing one, is a good hand at any kind of shooting. Sometimes the Snipe will squat with great pertinacity, and even stand a pointer, while at other times it will not suffer

either man or dog to approach within fifty yards of it. This, however, depends much on the state of the atmosphere. The finer and warmer the day, the easier I have found it to get near them, and the smaller is the distance at which they realight; whereas during drizzly weather, they fly off to a great distance. When the Snipe alights within sight, and you are concealed and silent, its movements can easily be observed. It first stands for an instant in a half crouching attitude, as if to listen, then raises itself and runs a few steps, when, if it be in any degree apprehensive of danger, it squats, and there remains until put up. If all around is quiet, you see it move in its ordinary manner, walking lightly, and with some grace, its bill half inclined downwards, in search of a good spot to probe for food. The instant it meets with this it sets to work, and thrusts its bill into the mud or the damp soil, to a depth determined by the degree of softness of the ground, repeating its thrusts eight, ten, or more times in quick succession. When it has thus examined a spot, and perhaps found some food, it walks off in search of another, and thus continues until it is satisfied, when it generally lays itself down in a soft tuft of grass until the approach of night, when it flies off and rambles about for exercise in comparative security. When wounded, it runs with moderate speed, but, if closely pursued, squats whenever a good opportunity occurs. It will at times continue to run for fifty or more yards, after which, if you have not a good dog, it is next to impossible to find it, for on such occasions it remains perfectly silent. While travelling eastward from Charleston, in the month of March, I found this Snipe perhaps more abundant near the Great Santee river than any where else. We could see them with ease from the carriage as they were walking over the rice-fields, as if in perfect assurance of security.

The food of our Common Snipe consists principally of ground-worms, insects, and the juicy slender roots of different vegetables, all of which tend to give its flesh that richness of flavour and juicy tenderness, for which it is so deservedly renowned, it being equal to that of the Woodcock. Many epicures eat up both Snipe and Woodcock with all their viscera, worms and insects to boot, the intestines in fact being considered the most savoury parts. On opening some newly killed Snipes, I have more than once found fine large and well-fed ground worms, and at times a leech, which I must acknowledge I never conceived suitable articles of food for man, and, for this reason, I have always taken good care to have both Snipes and Woodcocks well cleaned, as all game ought to be.

To WILSON is due the merit of having first shewn the difference between this bird and the Common Snipe of Europe; and it is honourable for the ornithologists of that region of the globe to have dedicated our species to so zealous and successful a student of nature. I have, however, been surprised

that he should not have mentioned the difference in the notes of the two species, which in fact is as great as that between those of the American Crow and the Carrion Crow of Europe. A decided difference of this kind I am always disposed to consider as satisfactory in the case of nearly allied species. While glancing over some of the numberless compilations that are pouring their muddy waters into the great stream of human knowledge, I was somewhat surprised to find in one of them an account of the American Snipe, in which it is stated that it is a *winter* visitant in the *northern* States, and will most probably breed farther *south*, without leaving the country!

The American Snipe is easily caught in snares placed on the spots of mud which it is wont to probe, and a good number are thus obtained by the farmers' children, especially during very cold weather, when, the birds having become emaciated from want of a good supply of food, they resort to the small warm springs of our meadows, and there remain until the return of milder weather. At such times and places, I have heard this bird utter various curious notes, which I am unable to describe, putting themselves into strange postures all the while, jerking their tails upwards, downwards, and sideways, for several seconds at a time, while the head and neck were moved backwards and forwards, as if the bird had been in a fit. I never saw this during warm weather, and am unable to account for it.

It arrives in Pennsylvania from the south about the middle of March, earlier or later according to the nature of the season, a month later in Maine, and about a week or ten days after in Nova Scotia. We neither saw nor heard of any in Newfoundland or Labrador, but they are abundant in the interior of the northern parts of the Canadas.

The young acquire the full plumage of the adult the first year after their birth, when no essential difference is perceptible between the sexes, the female being merely somewhat larger than the male. My friend THOMAS MACCULLOCH, who has not unfrequently found this bird breeding, and from whom I have received many of its eggs, was unable to say whether both sexes incubate, although this is very probable, as the male is often seen with or near the female while she is sitting, excepting towards evening or in the early part of the morning, when he mounts into the air, as if for the purpose of congratulating her by his curious song. It often happens that before these birds depart in spring, many are already mated. The birds are then met with in meadows or on low grounds, and, by being on the spot before sunrise, you may see both mount high in the air in a spiral manner, now with continuous beats of the wings, now in short sailings, until more than a hundred yards high, when they whirl round each other with extreme velocity, and dance as it were to their own music; for at this juncture, and during the space of five or six minutes, you hear rolling notes mingling

together, each more or less distinct, perhaps according to the state of the atmosphere. The sounds produced are extremely pleasing, though they fall faintly on the ear. I know not how to describe them, but I am well assured that they are not produced simply by the beatings of the wings, as at this time the wings are not flapped, but are used in sailing swiftly in a circle not many feet in diameter. A person might cause a sound somewhat similar by blowing rapidly and alternately from one end to another, across a set of small pipes consisting of two or three modulations. This performance is kept up until incubation terminates, but I never observed it at any other period. Our Woodcock produces a somewhat similar sound at the same season, and also at times on fine autumnal evenings, as I shall mention more particularly when describing that bird.

In confinement, our Common Snipe feeds freely on moistened Indian corn meal, mixed with some insects, but rarely becomes as gentle as the Woodcock in similar circumstances. When approached, it droops its wings and runs round its place of confinement, even should it be a small room, keeping its tail spread out on the side next you. If the bird is confined in a small space in front of you, it alternately throws the tail upwards, and spreads it in the manner mentioned at every successive turn to and from each corner. Sometimes it emits a lisping sound, but is more usually silent.

Mr. T. M. MacCulloch writes me thus:—"*In your article upon the Snipe, you seem to be unable to say whether the male incubates or not. I am inclined to think he does not. A pair of them have a nest this year close to our house, though I have not been able to find the spot. During any hour of the day, for some time past, the male could be heard uttering his curious notes in circles high up in the sky, beyond the reach of sight, and at night, even as late as eleven o'clock, I have heard him serenading his beloved with as much ardour as any lover who ever tried to win his way by music to his mistress' heart. The Snipe flies low at night, and in circles, as in the day; but it is only in particular spots and at short intervals that the sound is heard. The note is exceedingly like the winnowing noise which the wings of Pigeons make when alighting on the ground, and I have never yet been able to determine whether it is actually the voice of the Snipe which is heard, or whether it is produced by the bird's stopping in certain parts of his course and beating the air in some particular way with his wings.*".

Scolopax Wilsonii, Bonap. Syn., p. 330.

Snipe, *Scolopax Gallinago*, Wils. Amer. Orn., vol. vi. p. 18.

Scolopax Wilsonii, *Wilson's Snipe*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 401.

Wilson's Snipe, Nutt. Man., vol. ii. p. 185.

American Snipe, *Scolopax Wilsonii*, Aud. Orn. Biog., vol. iii. p. 322; vol. v. p. 583.

Male, 10½, 17.

Distributed throughout the country. Breeds from Virginia northwards. Exceedingly abundant in the Southern and Western Districts during winter.

Adult Male.

Bill twice as long as the head, subulate, straight, compressed for more than half its length, depressed towards the end. Upper mandible with the dorsal line straight, the ridge for a short space at the base flattish, then convex, towards the end flattened, the sides with a narrow groove extending to near the tip, which is obtuse and probe-like, the edges soft and obtuse. Nostrils basal, linear, very small. Lower mandible with the angle extremely long and narrow, the sides nearly erect, with a groove having several bars across it; the end of both mandibles covered, after death, with numerous prominences, or rather with reticular depressions, leaving small prominences between them.

Head rather small, oblong, narrowed anteriorly, the forehead elevated and rounded. Neck rather short. Body rather full. Legs of moderate length, slender; tibia bare below, scutellate before and behind; tarsus with numerous scutella before, smaller ones behind, and reticulated sides; toes very slender, free, scutellate above, narrow and slightly margined beneath; first very small, third longer than the tarsus, fourth much shorter, but considerably longer than second. Claws slightly arched, extremely compressed, very acute, that of the third toe largest.

Plumage very soft, rather full, blended, on the fore part of the head very short. Wings of moderate length, narrow, sharp; primaries broad, tapering, but rounded, the first extremely small and pointed, the second longest, the third very little shorter, the rest rapidly graduated; secondaries broad, short, incurved, rounded, the inner very long, tapering, as are the scapulars. Tail short, rounded, of sixteen rounded feathers.

Bill brown, the granulated part towards the tip black. Iris hazel. Feet bluish-grey, claws dusky. On the upper part of the head two brownish-black longitudinal broad bands, separated by a narrower central pale brown one, and with another pale brown band on each side from the bill over the eye; then a loral band of dark brown; chin whitish; neck pale reddish-brown, spotted with brownish-black. The general colour of the upper parts is brownish-black, variegated with pale reddish-brown, of which latter colour are the outer edges of the scapulars and of the lateral feathers on the anterior part of the back. Wing-coverts and inner secondaries similarly mottled, the smaller anterior coverts, the primary coverts, primary quills, and outer secondaries deep brown, more or less tipped with white; first quill white, dusky in the centre, second with the outer edge brownish-white; rump barred with yellowish-grey and dusky; upper tail-coverts similar, but the

larger barred with brownish-red and black. Tail-feathers brownish-black at the base, with a broad subterminal band of brownish-red on the outer web of the two middle, and on both webs of the rest, excepting the outer on each side, which is barred with brownish-black and white, the black bars five; the tips of all white. Anterior part of breast like the neck, the rest white; abdomen and lower tail-coverts greyish-yellow, barred with brownish-black, as are the sides; scapulars white, barred with greyish-black; lower wing-coverts similarly mottled.

Length to end of tail 10½ inches, to end of claw 11½; extent of wings 17; wing from flexure 5; tail 2¼; bill along the back $2\frac{7}{12}$; along the edge of lower mandible $2\frac{5}{12}$; tarsus, $1\frac{2}{12}$, middle toe 1¼, its claw ½. Weight 3 oz.

Adult Female.

The female resembles the male, but is rather larger.

Autumnal plumage.

The young in autumn resemble the old birds, but have the dark markings of a browner tint, the light more dingy, and the colours in general less pure.

In an adult male, the mouth is excessively narrow, its breadth being only 2 twelfths; on the palate are three longitudinal ridges of strong reversed papillæ, terminating anteriorly in a single ridge of similar papillæ. Both mandibles are moderately concave, with very thick sloping edges. The tongue is 1 inch 8 twelfths long, very slender, induplicate, so as to be deeply channelled in its whole length, emarginate and papillate at the base, tapering to a narrow, horny point. The œsophagus is 9 inches 9 twelfths long, 2¼ twelfths in width; the proventriculus 3½ twelfths in breadth. The stomach of moderate size, roundish; its lateral muscles large, the inferior prominent; its length 9 twelfths, its breadth the same; the epithelium thin, dense, with numerous longitudinal rugæ, and of a reddish colour. The right lobe of the liver is 1 inch 8 twelfths, the other only 10 twelfths in length; gall-bladder ovate, 4 twelfths long, 2½ twelfths in breadth. Intestine 14½ inches, its greatest width 1½ twelfths, the least 1 twelfth; the cœca 7 twelfths long, ¾ twelfth in breadth, 1½ inches from the extremity; the cloaca ovate, 6 twelfths in width. The intestine curves at first in the usual manner, at the distance of 1 inch 4 twelfths, then advances toward the right lobe of the liver, proceeds backward, forms a single convolution, and terminates in the rectum over the stomach, making altogether only 5 turns.

Trachea 2 inches 10 twelfths long, from 1¾ twelfths to 1½ twelfths in breadth, flattened, like that of every other species of the family; the rings very narrow, completely unossified, 108 in number, with 2 additional dimidiate rings. Bronchial half rings 15. Muscles as usual in this family.

END OF THE FIFTH VOLUME.

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